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News

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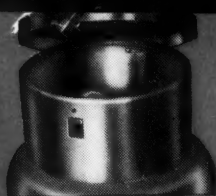
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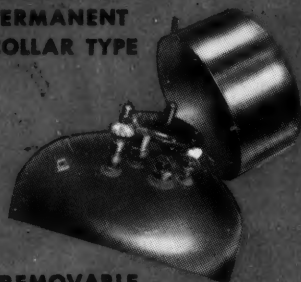
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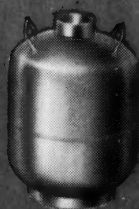
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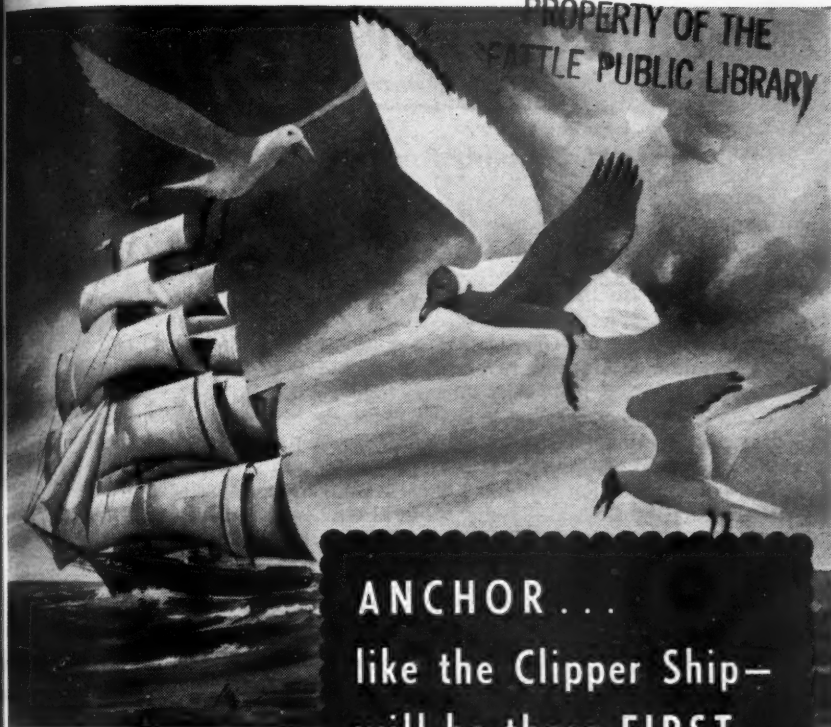
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JULY — 1946



BUTANE-PROPANE News



Reg. U.S. Pat. Off.

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ELLIOTT TAYLOR, Editorial Director

52 Vanderbilt Ave., New York (17), N. Y. Phone: MURray Hill 2-4504

Publication Office

LOS ANGELES (14)—1709 W. Eighth St.
Phone: DRexel 4337

Branch Offices

CHICAGO (3)—1064 Peoples Gas Bldg.
Phone: WABash 2589

DAVID CARMAN, Manager

NEW YORK (17)—50 East 42nd Street
Phone: MURray Hill 2-4504

L. V. HOHL, Manager

Editorial

LYNN C. DENNY, Editor

PAUL LADY, Assistant Editor

H. W. WICKSTROM, Technical Editor

Executive

JAY JENKINS, President and Publisher

ARTHUR ROHMAN, Vice President

JAMES E. JENKINS, Secy.-Treas.

July, 1946. Volume 8. Number 7. BUTANE-PROPANE News is published monthly. Copyright 1946 by Jenkins Publications, Inc., at 1709 W. Eighth Street, Los Angeles 14, California. Subscription price: United States and U. S. Possessions, Canada, Mexico, Cuba, South and Central American Countries (in advance), 25c per copy, one year \$1.50; three years for \$2.50. All other countries \$3.00 per year. Entered as second-class matter May 29, 1939, at the post office at Los Angeles, California, under the Act of March 3, 1879.

Member of Audit Bureau of Circulation; Associated Business Papers, Inc.

Publishers: GAS, The Magazine of the Gas Utility Industry; HANDBOOK BUTANE-PROPANE GASES; THE BOTTLED GAS MANUAL; WESTERN METALS; CATALOG BUTANE-PROPANE APPLIANCES AND EQUIPMENT.

LETTERS

Have you service or operating problems? Submit them to us and our technical department will endeavor to help you.—Ed.

Gentlemen:

We are new dealers in this territory and have been told that we can expect excessive moisture in the rooms from butane appliances. Is this true or false?

H.H.C.

Georgia

The principal products of combustion of any gas fuel, including butane and propane, are carbon dioxide and water vapor.

Large Btu input appliances should be vented to the atmosphere and be located where they have an ample supply of air for combustion. Proper venting of water heaters and space heaters will eliminate the forming of moisture in the rooms.

Kitchen stoves and appliances need not be vented, as usually there is so much water vapor released from the utensils being heated that the moisture from the products of combustion is a small proportion of the total and is not noticeable. Kitchen ventilation is a subject of its own and many new methods are being proposed to remove cooking odors and moisture from the modern kitchens.—Ed.

Gentlemen:

We shall appreciate any information now available on the cost of filling 100-lb. I.C.C. cylinders, assuming modern facilities are employed. Should the experience now available indicate that the cost will vary with varied gallonage this, too, would be appreciated.

If the figures available include cost of transporting for given distances with maximum loads this, too, will be helpful.

During my absence from the in-

dustry for the past three and a half years I have continued my subscription to Butane-Propane News and have every issue. Beginning June, 1939, to date. Any reference to this publication will be immediately accessible.

C.C.W.

Texas

The cost of filling 100-lb. cylinders will vary directly with the volume of cylinders handled.

It is necessary to provide weighing, filling, testing, storing and handling facilities if one or 1000 cylinders per day are to be handled.

With a modern plant one man should be able to fill thirty 100-lb. cylinders per hour. Testing and painting and handling costs are indefinite but are not excessive.

Transportation costs vary with Railroad Commission rates in various locations and can be determined from the local carriers.—Ed.

Gentlemen:

Where can I get information on ways and means for unloading tank cars and delivering and installing 500-gallon to 1000-gallon systems?

C.A.I.

Nebraska

The "Handbook Butane-Propane Gases" contains chapters upon both of these subjects, as well as covering all other phases of operation in our industry.

It is published by us and sells for \$5 per copy.—Ed.

Gentlemen:

We have been particularly interested in your recent articles on safety and the emphasis which the national organization is placing on a program to further safe practices. Recently an incident came to our attention which illustrates the necessity of educating

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PROPANE

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the users of bottled gas. We are passing it along for what it may be worth.

Our meter reader was making his usual rounds. When he stopped at one customer's house for the first reading since gas had been installed, the lady of the house asked him to come in and check her range. She said that she had noticed a slight odor of gas.

The range and all connections were thoroughly checked and no leak was indicated. During the course of the conversation which followed, the customer rather proudly announced that she was saving gas as, "every night I blow out my pilot and re-light it in the morning."

R. E. Winfree
Manager, Bottled Gas Co. of
Lynchburg.

Virginia

If any dealer has a better story than this, we will gladly publish it.—Ed.

Gentlemen:

Please accept my sincere thanks for the very prompt and efficient service you gave in connection with the "Situation Wanted" ad which you so generously carried, gratis, for a "GI Joe." Through it I have located a very good job supervising the construction of several B-P Gas bulk stations.

Joseph E. Pulling

Oxford, Pa.

We are gratified to learn of your success.—Ed.

Gentlemen:

Some months ago you published an article concerning the opening of a B-P Gas business in Southwest Utah. I would like to know this address as I am taking a trip to Salt Lake City in my butane equipped car.

Heretofore I have been running from Las Vegas all the way to Salt Lake City as these were the only fill-

ing stations I knew of on that route. Ran out of fuel once.

W.T.D.

California

I am glad to give you the name of the LaFrentz Liquid Gas Co., whose location is Cedar City, Utah.

This firm serves automobiles and trucks which burn butane or propane gas. I am also sending you under separate cover a copy of a B-P Gas automotive filling station directory published by the Adel Precision Products Co. which was issued last year and which lists B-P Gas filling stations all over the country.—Ed.

Gentlemen:

Your name has been given to me as possible source of information to the question of what is the comparative cost of gas for house heating purposes between bottle gas and street gas. To put it another way, if I can get bottle gas at \$6.25 a cylinder, how much more expensive would it be to heat a house in the country than it was for me when I bought street gas at 45¢ per 1000 cu. ft.?

This, of course, depends on comparing similar houses but we might assume an annual heating cost of \$150 with street gas. I had tried to do it by comparing uncertain information as to Btu content, but without much success. Any help you can give me will be appreciated.

W.S.B.

Boston

Bottled gas at \$6.25 per 100 pounds is an expensive heating fuel. Compared with 4¢ manufactured gas, your heating costs would be approximately $3\frac{1}{2}$ times higher, or \$525.00 per year.

If you are planning this large a consumption, a bulk storage plant would be advisable. You would no doubt be able to buy fuel in bulk much more reasonably than by the bottle.

There are approximately 21,000 Btu's in 1 pound of propane.—Ed.

• BUTANE-PROPANE News welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.

COMMENT

IF anyone has any doubts regarding where the butane-propane industry is heading (who has?) they can quickly be set straight by reading what Ken Rugh told the Gas Appliance Manufacturers Association in Chicago last month.

More than two million consumers now—and upwards of another million the first year of supply availability. And 15,000 retail outlets to serve them!

The nation will suffer the largest fire loss in history in 1946 unless effective, united effort is made on a national scale to check the present excessive burning rate, which is due largely to carelessness. Frank A. Christensen, president of the National Board of Fire Underwriters, pointed out this danger recently.

There is increasing talk among manufacturers about the impending "buyer's market." Some say the change may come as early as late 1946; during 1947, surely.

Reason: Great stocks of all kinds of merchandise, soon available; a "choosy" public when it becomes able to make selections; a reduced buying power, due to war-time savings being partly expended in living.

One firm believes some buyers are becoming habituated to going without consumer goods and will hesitate to purchase new goods, even when possible.

Universally, these prophesiers urge dealers to build up strong sales organizations to meet competition.

Equally important is the development of new fields in given areas. Dealers who have concentrated on domestic business may well look to the

opportunities around them for commercial, industrial and new agricultural accounts.

Don't forget—liquefied gas works anywhere.

On one of its national broadcasts in June, the International Harvester Co. announced its program to manufacture engines which would burn butane and propane, in addition to engines for other fuels.

It not only was good publicity for the B-P Gas industry but it is another illustration of a trend toward liquefied gas for heavy duty equipment. Last month we told of Le Roi engines in cotton gins, Waukesha motors on railroads and Hall-Scott engines in trucks. This month Minneapolis-Moline engines are featured for cotton planting and in saw mill operation. Butane and propane engines are standard practice for oil well drilling, flame weeding, water pumping, grain drying and all other agricultural applications.

Dealers will do well to look to the internal combustion engine for summer load building. They use huge quantities of fuel and do great work.

The OPA, in suspending price control on B-P Gas cylinders, pays tribute to equipment used in our industry when it states a cylinder has a life of 25 to 40 years.

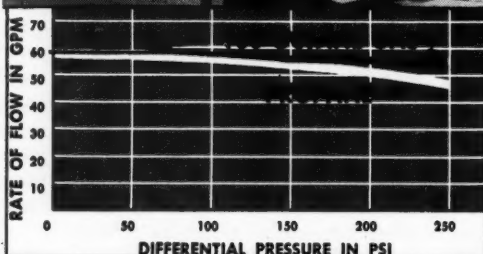
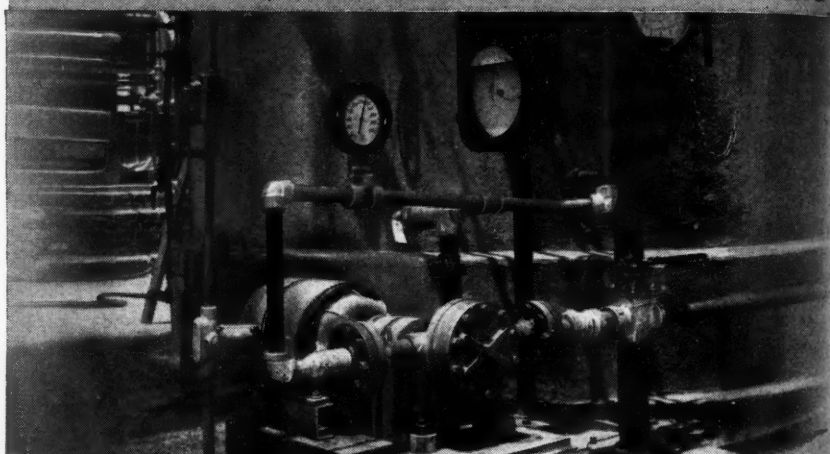
Charlie Denton, expert on irrigation pumping with B-P Gas, is skipping this issue. He's been traveling too much to find time to write.

But there'll be another installment next month.

By Ed.

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**WRITE FOR CATALOG AND
INSTALLATION INFORMATION**

Beyond the Mains

By ELLIOTT TAYLOR



Dealers' Choice

The unmistakable trend toward bigger distribution companies to handle liquefied gas is a movement in the industry that cannot be denied and should not be ignored. It is a movement that is bound to be viewed with different feelings by operators in the field, depending on whether they think they stand to gain or lose by the changes that are coming about.

As we all know, the butane and propane business grew so fast in its initial stages, it had almost assumed the proportions of a major industry before anyone except its own operators paid any attention to its existence. Even now it is different from other industries in that it has no set, standardized pattern of distribution. Some refiners sell all of their output to other refiners. Some sell to distributors who, in turn, sell to the general public as well as to retail dealers.

Not only is there no particular merchandising pattern that

can be described as typical of the whole country, but it would be difficult to even pick out a definite trend as far as the major producers are concerned. Where one big oil company recently sold out all of its eastern retail operations to an independent distributor-dealer, another producer in the same area is now laying plans to go into a retail operation with its own trade name through franchised dealers. Still another has been surveying the market for months and is only now developing a program.

The truth is that a few years ago the oil companies looked on any type of retail operation, whether their own or an independent's, as satisfactory if it enabled them to get rid of the propane and butane that they practically had to make in connection with the manufacture of gasoline.

Those days are over now, and the major oil companies, seeing visions of a profitable market with almost unlimited opportunities for expansion ahead, are

ready not only to supply that market, but to develop organizations and to invest money in seeing to it that they get their individual share of the profits that are waiting there.

The banking industry, which traditionally waits until a field has been thoroughly pioneered before it evidences any interest in financing its expansion, is now willing to investigate practically every liquefied gas proposition that comes along. Inevitably many of these propositions are proposals for mergers—the buying up or acquiring by stock issues a number of smaller distributors by one operator who sees an opportunity to unite an entire service area or territory under a single management.

Among the new factors to be reckoned with must be included the belated but astoundingly lively interest that the established gas utilities are now taking in propane. Right now their interest is in using it to replace high cost inefficient manufactured gas plants, or to add to their peak load capacity. But many are now lining up with a new deal wherein they switch over the old town gas plant to propane-air, and then set up a bottled gas distribution operation to sell beyond the mains.

So far these have been mostly small town plants, but only a question of the economics involved will keep the big utilities out of the field, and many are analyzing the economics of such a move right now.

Entry of the cooperatives, with their enormous following of farm families in every state in the union, is another factor of significance. The co-ops are tenderly regarded by the politicians as poor, struggling, little groups of neighbors bent on taking in each other's washing, but the cooperative movement in the United States is now big business. The newest co-op to enter the propane field has 187,000 members in five Southern states.

The big mail order houses are ready to expand their appliance sales activities too, and while their plans regarding liquefied gas have been kept in the secret file, one of the biggest is already operating in a limited way in the Midwest, and has been making inquiries for the purchase of large quantities of cylinders and other installation equipment, presumably with a view to expanding eastward.

Right now everything is in a state of uncertainty, because the shortage of appliances and equipment make it impossible for anyone to proceed on a big scale, regardless of how ambitious his plans may be. But the dam is bound to break sooner or later, cylinders and stoves, tubing and water heaters, regulators and refrigerators, will hit the market in quantity and then the race will be on.

The electrical industry is well aware of what it is up against when that happens. The possibility of liquefied gas adding two

million new consumers in its first year of unhampered operations has the power companies bug-eyed with apprehension. They are exhorting the manufacturers of appliances to spend more and more to help them salvage the cooking load, and they are gearing their promotions to one big major campaign—beat liquefied gas first. They will get around to other matters later.

With the giants in the industry and the giants outside of it getting ready to slug it out, it is no wonder that the dealer may have ground for grave concern over his place in the big picture. Has the little guy a chance?

We have said in the past, and we still believe it is true, he does have every chance in the world if he is on his toes, if he can think in big league terms, and if he takes advantage of every opportunity that comes his way.

Every merchandising scheme that was ever invented finally boiled down to the necessity for actual contact with the prospective buyer. Even the mail order houses finally had to install retail outlets in communities all over the country. They got a lion's share of the farm business, but they didn't put the country store out of business, and they finally had to get down to country store type of merchandising to protect their own markets. They needed the point of contact.

The point need not be labored further. The opportunity for lit-

tle dealers to become, in one great step, big distributors may not exist in the future. But the opportunity for little dealers to become bigger dealers and to grow in stature in the industry and in the eyes of the community that they serve will be as great tomorrow and next year as it ever has been. We will go further and say the opportunity will be even greater than it has ever been.

With liquefied gas a big-time operation, every dealer in the industry will be better off if he is alert to his opportunities. The puny and piddling promotions that now pass for publicity and advertising programs will not be a drop in the bucket compared to the appropriations that will have to be rolled out if the fuel fight is to be the real, main event that it promises to be.

As it looks from here, the bigger they grow in the distributing end of the gas business, the more they will have to rely on the dealers who are their points of contact with the world of buyers. And the more they have invested in the big distribution organizations, the more they will have to spend to see to it that that investment is protected and kept profitable. And the dealer organization will be the key to the success or failure.

If the new trend means anything to the independent dealer, it should mean that more than ever his future is in his own hand. It is still a game of dealers' choice.



"From behind that door
comes Leadership in
QUALITY and STYLING"

A continuous program of research and experimental engineering combined with over forty-five years experience in the manufacture of gas burning appliances keeps Humphrey Products out in front.

Style trends are anticipated far in advance. New materials are unceasingly and critically tested. New streamlined methods of manufacture are developed and adopted. New principles of construction are created. And all this results in UNSEEN values which assure maximum satisfaction for your customers.

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High compression tractor equipped with butane fuel tank and carburetor. It is pulling a 4-bottom, tractor plow.

Three Ways to Balance Load

PLOWING, planting, planing — three more ways to help balance the dealers' load!

All of these require large quantities of butane or propane, but by giving better performances at lower costs than gasoline, or even diesel, the power units are paying for themselves in short order.

In two of the accompanying illustrations tractors are shown performing important farming jobs. One is pulling a 4-bottom Moline "Hi-Clearance" tractor plow on the Rose and Crane ranch, and the other is planting cotton on ridges on land owned by A. J. Edwards & Sons, Tahaha, Texas, and operated by Russell Stice, of the same town.

Both were built by the Minne-

apolis-Moline Power Implement Co., of Minneapolis. It is no longer necessary to convert Moline tractors in the field for use with liquefied gas as this firm now builds tractors and power units with B-P Gas equipment optional to the purchaser.

Mr. Stice has revolutionized his farming operations by solid planting 75 acres of cotton on ridges per 10-hour day on 20 gallons of butane. Both of these tractors are Model "U's," one equipped with narrow front wheels for row crop work.

The Model HUA power unit is used extensively in saw mills in Southern states. The one illustrated is owned by M. L. Lott & Son in Sumrall, Miss.

In this operation, the approximate consumption of fuel is 50



gallons of butane every 9 hours, which is considered very satisfactory. About two quarts of 20 weight oil are added every three days. When operating on butane there is no crankcase dilution, but it is necessary to add a little oil for lubrication.

The engine pulls a Hall & Brown planer which will take lumber up to 6" by 15". Two 35" shavings

fans, powered by the same engine, pick up shavings and blow them 110 feet.

The number of feet that can be run through this planer in a given time varies with the dimensions of the stock. Ordinarily about 10,000 feet of 1"x6" can be finished in 9 hours, while in the same length of time 20,000 feet of 2"x6" can be planed.



▲
Above: Butane-burning tractor planting cotton on ridges. Below: Butane engine pulling a planer in a southern mill. Fans are powered by same engine.
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Birth of a Business

AN excellent illustration of what a new dealer can accomplish in a short time is evidenced by the progress made by Dana and Wilson Butane and Sales Co. The home office of the company is located at Tempe, Arizona, near Phoenix.

Most of the installations made have been on ranches in the rich Salt River Valley.

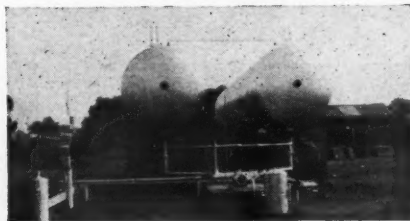
According to Ben R. Wilson, general manager and vice president, their business has been established just one year. They operate one transport truck together with two service trucks and a heavy, special built trailer to facilitate handling tanks from the plant to the point of installation. They have two 9300-gallon propane storage tanks, built by A. O. Smith Corp., and equipped with a Smith Precision Products Co. pump. Roney fittings are used.

Nothing smaller than 150-gallon

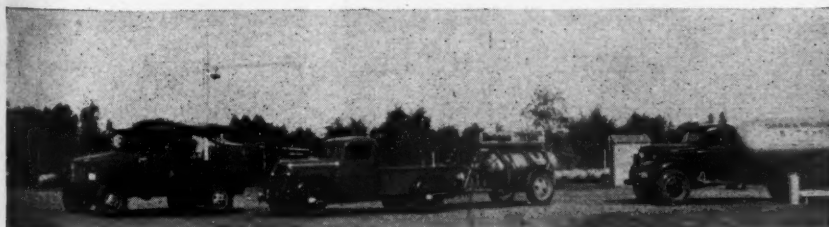
tanks are installed for customers, and many are of 500-gallon capacity.

An electric hoist is used for loading and unloading tanks and heavy equipment.

A retail store is also located in Tempe that carries ranges, water heaters, space heaters and many other appliances. At this location there is a 540-gallon tank for filling small bottles.



Above: Two 9300-gal. storage tanks. Below: Service trucks, trailer, and transport.



★ Texas Dealers M Fo



LYLE BLANTON

W. E. FRALEY

By PAUL LADY

First Annual CONVENTION and TRADE SHOW

WM. J. LAWSON



s M Fort Worth

TEXAS did it again! Putting on what many termed "the best convention I ever attended," the Texas Butane Dealers Association held a two-day meeting at Fort Worth, June 11-12, that brought together 400 members and guests from every corner of Texas and from many states throughout the nation.

An instant success from the time

OFFICERS ELECTED June 11-12 to direct the Texas Butane Dealers Association during 1946-47 are:

Lyle Blanton, president.

H. C. Pittman, first vice president.

W. B. Mosher, second vice president.

W. B. Martin, second vice president.

Gus J. Moos, secretary.

Wm. J. Lawson, executive secretary.

HOWARD D. WHITE



E. E. HADLICK



A. J. BOMMER



**RALPH G. ABBOTT
G. J. MOOS**





G. M. KINTZ

President W. E. Fraley called the meeting to order on Tuesday morning, the convention carried on throughout two days of meetings, exhibits and social events in true Texas fashion and hospitality.

The serious side of the convention presented several outstanding speakers from many sections of the country. The many details of the meeting were handled by TBDA's able executive secretary, Wm. J. Lawson, of Austin. Mr. Lawson set out to make the Texas Association's First Annual Convention and Trade Show a success. He did this and more.

The Tuesday morning program was opened by President Fraley.

Invocation was given by the Rev. Hayden Edwards of Fort Worth.

The Hon. Homer Covey, president of Fort Worth Chamber of Commerce, welcomed the group to the city. Gus J. Moos, secretary-treasurer of TBDA, gave the response to the address of welcome.

The only paper given in the morning was presented by Elwin E. Hadlick, executive vice president of the National Butane-Propane Association, Minneapolis. His subject was "The Gas Distributors' Interest in Insurance." His able handling of this subject threw much light on a vital question and gave some hope that the problems which now exist can and are being met. An open discussion on this topic was led by Robert A. Hicks, special representative of Keystone Mutual Casualty Insurance Co., Dallas.

On the afternoon program, A. J. Bommer, field representative, Underwriters Laboratories, Inc., Dallas, discussed "Model LPG Code for Cities." What he had to say on the subject was timely and interesting to the audience.

Safety Demonstration Given

The final speaker for the afternoon was G. M. Kintz, supervising engineer of the U. S. Bureau of Mines, Dallas. His two hour program, dealing with "The Magic of Fire," was accepted with great enthusiasm by the large crowd present. It consisted of many actual demonstrations showing why and how explosions and fires occur. It was an extremely interesting and enlightening show.

The big social event of the meet-

ing was held Tuesday evening. Over five hundred men and women gathered for the annual banquet and dinner dance held on the fourteenth floor of Hotel Texas. The speaker of the evening was Clayton Rand, humorist and author.

Wednesday's program included three papers. The first was "Who's Afraid of the REA?", delivered by the writer.

Ralph G. Abbott, assistant chief engineer, Ensign Carburetor Co., Dallas, spoke next on "Industrial Uses of LPG in Texas." He brought out the importance of this type of sales, especially from the standpoint of balanced load.

Howard D. White, executive vice president, Liquefied Petroleum Gas Association, Chicago, spoke on "Essentials of Industry Cooperation," urging every dealer to get behind his association.

1947 Meeting in Galveston

During the short business meeting that followed it was unanimously voted to hold the 1947 convention of TBDA in Galveston.

The new president is Lyle Blanton, of Hereford; first vice president, H. C. Pittman of Tyler, and second vice president, W. B. Moshier, of Wichita Falls.

The new directors, in addition to the officers, are: Bryan White, Wm. J. Lawson, L. K. Haines, Bill Leadbetter, M. E. McKay, Ira Anderson, Elmer L. Atkins, W. B. Martin, Alex Schubach, W. Don Maxwell and T. W. Cadenhead.

The exhibits, presenting the lines of many manufacturers of equipment and appliances, were probably the most complete presented

since war cut short this type of display.

The eagerness and continued interest shown in these displays by everyone present proved that the industry is on the march and all it needs is equipment.

Texas Safety Meetings Continue in Districts

Representatives of the insurance companies and the U. S. Bureau of Mines are continuing to lead insurance discussions and fire demonstrations at the scheduled meetings of the Texas Butane Dealers Association district meetings.

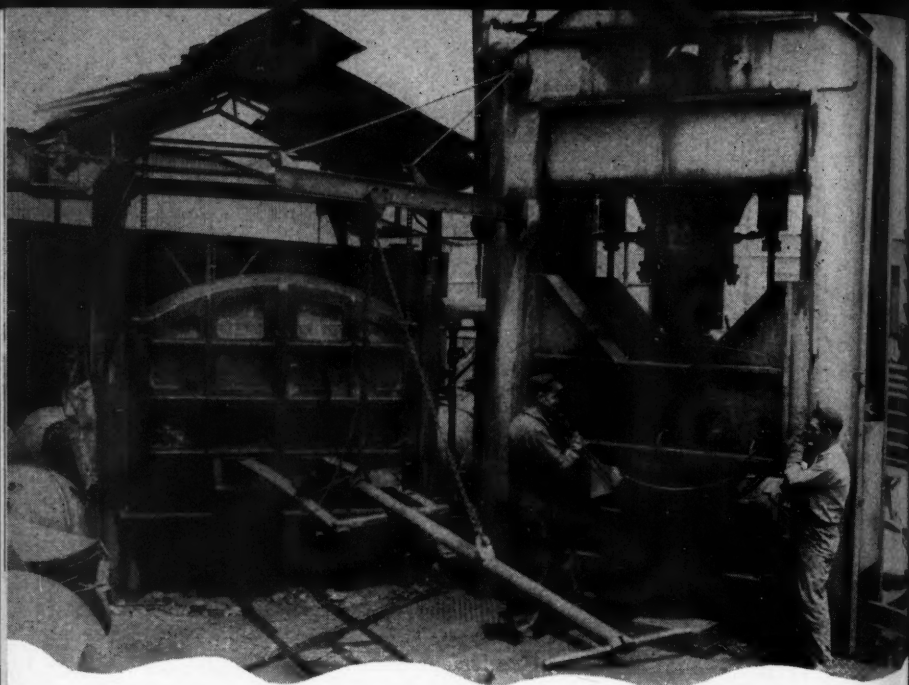
Recent meetings were held at Lubbock, Midland, Abilene and Fort Worth, where the "Magic of Fire" demonstration, showing the safe handling of B-P Gas and demonstrating the explosive qualities and hazards, was the highlight of the gathering.

Those in attendance at the meetings were helped to analyze their insurance needs as required by the Railroad Commission laws for the safety of their business and employes by the insurance discussions supervised by the underwriters.

AGA Expects 10,000 Guests At Annual Fall Convention

Plans for a record-breaking attendance at the annual convention and exhibits of the American Gas Association during the week of Oct. 7 with a registration of 10,000, are being formulated by the Association's convention committee under the chairmanship of Irving K. Peck.

Everett J. Boothby, president of the AGA, states that already 3000 registrations have been received.



A 6½' x 10' direct-fired gas furnace used to heat plate for sphere segments before dishing them on adjacent 600-ton hydraulic press. Dished segments in left foreground.

By FRED M. BURT

Building a Propane Tank

THE growth of the B-P Gas industry has created a demand for an increasing number of containers for distribution, plant storage and consumer storage. How these tanks are built is of interest to all users.

One of the companies helping to fill this demand by dealers is the Superior Tank & Construction Co., Los Angeles. This firm has installed shop facilities for the construction of ASME and API-ASME code welded pressure vessels.

The transportation and storage vessels produced range up to 10,000 gallon capacity. Many of the spher-

ical and cylindrical tanks, particularly the large ones, are made to customer specifications. The cylindrical tanks have half-sections of proper sized spheres (hemispheres) welded to them to form the ends.

For instance, 500-gallon, 1000-gallon and 1500-gallon cylindrical tanks use hemispheres of the standard 150-gallon, 41-inch diameter propane ball.

Every inch of the welding on many of the pressure vessels made is x-ray'd to make certain there are no flaws. When indicated, many of them are stress relieved to relieve

strains set up in forming the component segments of steel that are welded together to make the tanks. While the working pressure on propane tanks is 250 psi, they are hydrostatically tested with water at 375 psi to conform to API-ASME code requirements (and 400 psi for ASME code), and then hammer tested at 313 lbs. The spheres have a safety factor of four, meaning that they are constructed to have a minimum bursting pressure of 1000 psi. Many of the Superior spheres have withstood 1200 psi in test, before showing signs of leakage.

About three-fourths of the units produced are those popular 150-gal. spheres. These are made up of two identical halves drawn on a huge 6000-ton press in the plant of the Norris Stamping Co., Los Angeles. Other standard size Superior

completed tanks are shipped, over storage and spray-painting areas, then past fabrication, the cutting tables, a wide passageway leading to other operations, and then out over steel plate storage. The steel plates are stored on edge in racks in a manner to make it easy for the crane hoist and grab to pick them up for delivery where needed.

After the aforementioned segments are rough-cut to shape, they

Trimming edges of dished sphere segments to precision size with radiograph. Note method of holding it firmly in exact position with center pin, around which it revolves to cut successive edges. At left on truck are uncut segments with template in top one. In right and right background are 150-gal. spheres drawn in two pieces after welding on automatic set-up.

Propane Tank

spheres have diameters of 32", 48" and 68". Each of these sizes is made up of six identical-sized segments welded together after they have been dished.

These segments are rough-cut in the flat, with an oxy-acetylene cutting torch, from steel plate on steel cutting tables, 72" long, 42" wide and 32" high, five of them in two rows at the end of the main building. These tables are served by two overhead cranes that span the width of the building, about 40 ft. with a travel of about 220 ft.; from one end of the building from where





Outside welding of six-segment sphere.

are trucked to the nearby heating furnace and 600-ton hydraulic press. (See Fig. 1.) The 6½'x10', direct fired gas furnace, brings the segments up to about 1400°F. in about five minutes. Two rows of rails in the furnace will hold two of the larger, four of the smaller, segments. The heated units are transferred from the furnace to the press by a fork crane arrangement. With dies, male and female, for each size of segment, the steel plates are hot-pressed into an "orange peel" shape.

As these segments are rough-

cut to a little over-size, they are next flame-cut to exact form and dimensions. (See Fig. 2.) A steel template is set inside the formed segments, with the exact placement regulated by fitting at the four corners. Then these corners and the outline of the cut are chalk-marked.

Next the segment is placed in a holder on the edge of a special cutting table. It is positioned so that the first edge to be cut projects above the edge and top of the table. It is held firmly by the pressure of a heavy rod which is screwed up against the center of the plate with the point of the rod in a small, center indentation which has previously been punched in the plate.

Steel Cut With Radiograph

The cutting of the 5/16" steel is done with a radiograph. It travels across the table on a track that parallels the edge of the upwards projecting plate. The plate is adjusted to exact position by lining it up with the cutting torch at each corner. Then the holder is tightened up, the cut is quickly made, the plate is loosened and turned for a cut on the next side—so on till all four cuts are made. The cutting torch is at an angle to give, also, a bevel, so that a proper welding deposition can be made when the segments are welded together.

These six segment spheres are welded up by assembling the six parts, bottom and top and four pieces around, and tack welding them together, followed by finish arc-welding. (See Fig. 3.) This is progressive, as it is necessary to weld inside first. Thus, as each part

is tacked on it is then inside-welded, often in one pass with a G-E 3/16", all-position, reverse polarity electrode.

After the sphere is solid-welded inside, a torch is used to flame-gouge the outside of the seam to clean metal, usually to about two-thirds of the metal's thickness. The seam is then welded solid on the outside in two or three passes, sometimes with the same electrode used for the inside seam. The last segment is welded-on from the outside against a back-up strip.

Spheres Are Precision Cut

The large quantity production of the 41", 150 gal. sphere starts with the receipt of the drawn hemispheres. These are a little oversize as to the extension of the edge and this is flame-cut to make a true hemisphere, with a trimming-off of about 1½ inches. This is done on a Ransome positioner on which the half-section is fitted so that as it revolves slowly past a fixed cutting torch a precision cut is made. (See Fig. 4.)

The trimmed parts are then carried by a one-ton electric hoist, traveling on an overhead rail, to an automatic welding operation that joins the two parts into a sphere. This rail is extended by a jib crane with the same-sized I-beam as the fixed overhead rail, onto which the hoist carrier can move. The jib crane will swing to various positions over both cutting operations just described.

In the automatic welding together of the two drawn, half sections of the 41" sphere, they are tack-welded together with a back-

up strip inside of the "equator." This back-up strip is made of 3/16"x1¼" flat bar formed into a ring. The resultant sphere is placed in the Superior-designed and built welding device where it is held by the pressure exerted by compressed air and between two heads. As the sphere turns at the proper, predetermined speed, the arc welding is done automatically by a regular Lincoln Electric set-up with the welding rod fed from an overhead roll.

In constructing the larger spheres, after the segments, five, six or seven to each half sphere, have been cut and dished, the pieces for each half of the sphere are assembled and tack-welded on the outside. Then they are solid-welded on the inside, followed by the flame-gouging on the outside of the seams to clean the metal. Then the crane places the top half on the lower half and they are tack-welded on the outside.

Does Inside Welding Job

A 16-inch, round hole is left in the center of the top section to allow ingress for the welder who solid-welds the equator on the inside. Then the outside of the equator seam is flame-gouged, after which it is solid-welded. Solid-welding the round, 16-inch plate against a 1-inch backstrip finishes the sphere, fittings having been installed before the opening is welded.

According to R. L. Fowler, Superior's chief engineer, "Flame-gouging, using propane and oxygen, takes only about one-third of the time formerly used in chipping, and costs only about one-half as



Half section of 150-gal. propane sphere, drawn in one piece, being flame-cut to exact hemispheric dimension on Ransome positioner. Note angle of cutting torch to give a bevel. The holding jig is bolted to the positioner.

much. We consider it vastly superior in removing slag and in laying the foundation for the kind of weld that pressure vessels require."

Les Armstrong, plant superintendent, adds a strong commendation, "The savings in time and cost of operation are important of course, but we feel there is another definite advantage in eliminating the nerve-racking noise of the chipping operation. All of the men in the shop feel better and work better since we changed over to flame-gouging."

Segments not press-formed are dished on a large dishing machine which will handle plate up to 15/16" thick and 10' in diameter. Back of the dishing machine is an area containing lay-out tables and

assembly and welding benches for arc and gas welding. Here all of the smaller assemblies are put together. Ingeniously contrived sheet steel racks, divided into compartments with sheet steel dividers, contain the component parts of these assemblies, and are designated by the order numbers in process.

The dishing machine is served by a one-ton electric hoist carried on a jib crane, along with an ironworker close by. On the other side of the large unit assembly area, hydrostatic testing is done. Parallel rails hold up to 20 of the smaller spheres. They can be emptied through grillwork between the rails, with the water running off into a sump at one end of the cement-lined water channel. Also lined up on this side where they can

be served by the cranes, are large shears to cut plate up to 3/16" thick (heavier plate is flame-cut), two powerful 10-ft. press brakes, and two 10-ft. bending rolls that will handle A-70 plate up to 5/8" thick. These come into use in forming the cylindrical sections for larger tanks.

The two cranes are of three and five tons capacity and can be doubled-up for heavy lifts. Back of these machines in another area, all-welded stairways, cat-walks and landings, with safety railings and safety steps, are constructed on special jigs. These are used to reach the tops, and to go from one large oil tank to another. They are built up, mostly, from angle iron. The safety steps are punched out of steel plate on a press brake.

When the single-piece, drawn

sphere half-sections are not the proper size for the ends of cylindrical tanks, spheres of proper size are welded up from six segments and then the ball is flame-cut in two to form the hemispherical heads.

Sixteen arc-welding units are used—including two 600 ampere automatics.

There are about 200 employees in this two-acre plant and yard and in the field department and Bakersfield branch devoted to oil field construction. Also included in the Los Angeles plant is the Advance Auto Body Works. This affiliated company manufactures a great variety of special auto bodies, mostly rather large units. Gasoline, oil, propane and butane gas tanks and others are constructed and mounted on chassis and trailers, along with all piping, valves and gages.



This group attended the last regular meeting of the Missouri Liquefied Petroleum Gas Association in Moberly. The membership has increased 50% since the first meeting.

Gas Appliance Manufacturers Told Where B-P Gas Industry is Going

AT the 11th annual meeting of the Gas Appliance Manufacturers Association in Chicago, June 11-12, one of the principal speakers was Kenneth W. Rugh, of Phillips Petroleum Co., Bartlesville, Okla.

Mr. Rugh, an expert on liquefied petroleum gas, presented new figures on the startling growth of butane and propane. He estimates that the industry now has between 2000 and 2500 bulk stations, 15,000 retail outlets, and well over 2 million domestic gas consumers. He prophesied that new installations of between 750,000 and 1,000,000 would be made during the first normal year of supply availability.

The supplies of both butane and propane are ample and the potential output of the industry is far in excess of any presently foreseeable demand. He advised appliance manufacturers to be prepared to develop new policies and practices, where necessary, to conform to liquefied gas merchandising standards.

He ventured the opinion that there should be separate advertising and promotion, based on rural



K. W. RUGH

retailing problems, rather than on city utility experiences.

In opening the meeting, President Lyle C. Harvey, president, Bryant Heater Co., stressed the new problems which confront the gas appliance and equipment industries today. His recommendations included:

(1) There should be a concerted industry attitude toward the OPA and remaining governmental controls.

(2) Gas appliance manufacturers should aspire to handle all their association business through GAMA.

(3) Every effort should be made to achieve a spirit of closer cooperation with the AGA, but with the appliance industry retaining jurisdiction over its own affairs so far as appliance design is concerned.

(4) There is a need of more detailed and reliable statistical information on the appliance industry.

(5) There is a need for a superior promotion effort in the sale of gas appliances.

Newly elected officers of GAMA for the ensuing year are, president, D. P. O'Keefe, president of O'Keefe and Merritt Co., Los Angeles; 1st vice president, John A. Robertshaw, president of the Robertshaw Thermostat Co., Youngwood, Pa.; second vice president, Frank J. Hoenigmann, vice president of Florence Stove Co., Chicago; treasurer, John Van Norden, secretary of the American Meter Co., New York.

Tulsa Short Course

Gives B-P Gas Men New Source of Information

By O. D. HALL

THE newly organized "LPG Appliance Short Course," held June 18-21 at Tulsa (Okla.) University, was so successful that it was decided to hold another school next year, probably in May. The registered attendance totaled 85.

It followed a "Natural Gas Appliances Short Course" under sponsorship of the same university, on June 11-14. Dr. F. T. Gardner, Professor of chemistry in the College of Engineering directed both short courses.

The B-P Gas short course was a project of Tulsa University but leaders in the industry in Oklahoma, the Liquefied Petroleum Gas Association, of New York and Chicago, and the Natural Gasoline Association of America cooperated in arranging the subjects and selecting the administrative instructors. The latter are leaders in the B-P Gas industry with practical knowledge and experience in the subjects they presented. Half-hour question periods each half-day were fully occupied by a running series of questions from the registrants. Several states outside of Oklahoma were represented in the course.

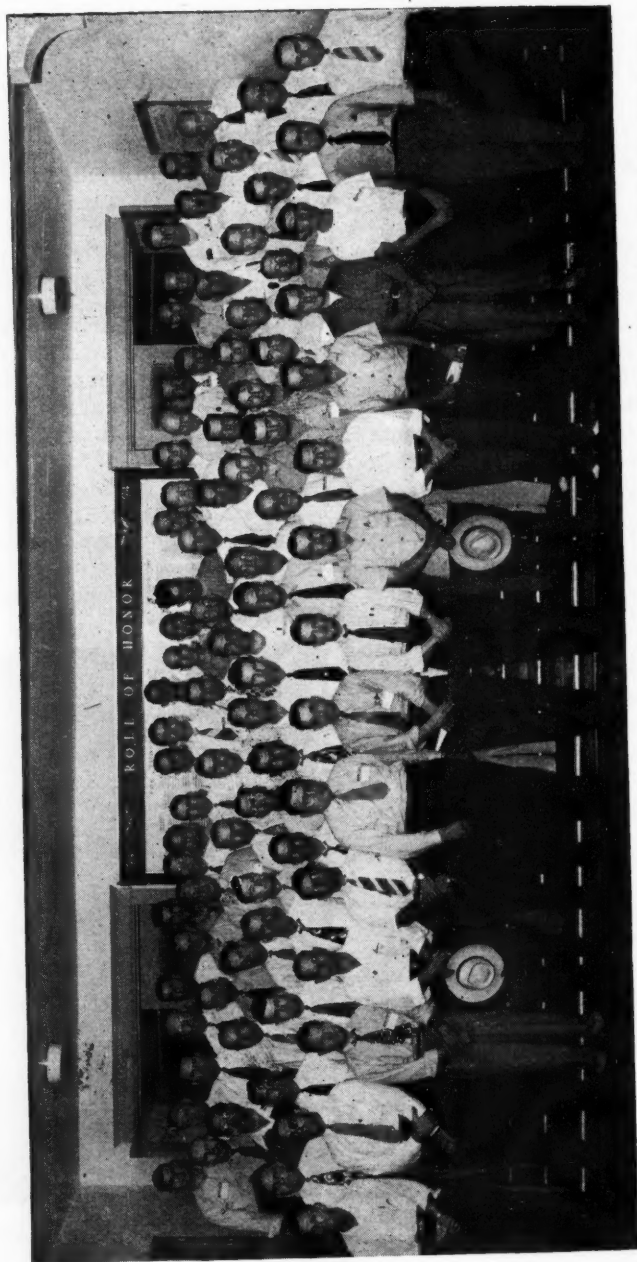
Following welcoming remarks by university officials, G. L. Brennan, Warren Petroleum Co., Tulsa, first in the program among the administrative instructors, emphasized the importance of the school, the

first of its kind in the Southwest.

"You in a sense are charter members of this movement" said Mr. Brennan. "You have come here to gain greater fundamental and practical knowledge of the liquefied petroleum gas business. It is very fitting that this course should be inaugurated in Oklahoma where is found headquarters of the companies which market more than 50%



Dr. F. T. Gardner, director, opening a session of Tulsa University Short Course.



The group which attended the E-P Gas Short Course sponsored by the University of Tulsa. Picture taken first day; more men registered later. Total, 86.

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of the liquefied petroleum gas sold in the entire United States."

The speaker referred to the remarkable growth of the industry from zero to its present important status within about 24 years. Giving a dictionary definition of "service" as "accommodation to a dealer or consumer to promote the sale or use of a product," he added that the profit motive was of great importance and if the product was not sold at a profit the industry would die.

Men Given Sales Advice

While much of the subject matter presented by various speakers was technical, it was given a practical slant so that the information could be used when the men return to their various companies. While the short course was not a sales meeting, some practical advice was given to the registrants which would help to increase sales. An example was counsel to dealers to become more "gas sales volume conscious" in the sales of water heaters, given by H. B. Kivlan, Ruud Manufacturing Co., Pittsburgh, Pa., during his presentation of the subject, "Water Heating Installation."

"It would seem that some B-P Gas men are not doing a very good job of selling gas," he said. "For example, a 45-gallon water heater was installed in an establishment where requirements made it impossible to keep a sufficient supply of hot water on hand with that sized equipment. I wonder why more of you have not been selling volume and thinking in terms of installing



G. L. Brennan, Warren Petroleum Corp.,
Tulsa.

water heating equipment which has sufficient capacity to do the job."

Mr. Kivlan said that no postwar models will be built by his company for B-P Gas which are not fully automatic, including automatic cut-off. Cold water will be introduced at the bottom of the tank in postwar models resulting in increased serviceability.

Presenting the subject, "Properties of LPG" E. W. Evans, Phillips Petroleum Co., Bartlesville, enumerated some of the contaminants, including sulphur compounds, water, pentanes and heavier, and miscellaneous elements. He also discussed some of the uses of B-P Gas in the accepted field as well as uses of light hydrocarbons in other fields. Special uses which may require modification of specifications are found in the glass industry and in preparation of controlled atmos-

pheres for various heat treating operations. He also discussed NGAA and CNGA specifications and test methods.

Distribution equipment usually employed in the B-P Gas industry was explained in detail by Ralph H. Engstrom, The Bastian-Blessing Co., Chicago. Release valves should be sealed at the factories to prevent tampering, he said. They should point upward. Containers should be filled only to a certain level, say 90% of capacity. If filled to full capacity and weather becomes hot, they will build up tremendous hydrostatic pressures. If propane is dumped into a butane tank partially filled with butane a hot day will build up residual pressures, creating hazards.



E. W. Evans, Phillips Petroleum Co.,
Bartlesville.

Mr. Engstrom advised all persons who handle B-P Gas equipment to obtain a copy of Pamphlet No. 58 of the National Board of Fire Underwriters and follow the instructions therein carefully. He also discussed testing of excess flow valves, unloading adapters and vapor return valves and warned against driving away with hose connected. He also took up high pressure and low pressure regulators, explaining their construction and operation from working and cut-away models.

Service Man's Obligation

The service man who leaves a liquefied petroleum gas installation without testing it thoroughly is looking for trouble, declared John Knox Smith, Phillips Petroleum Co., Bartlesville, who discussed "Safety Precautions." He advised that after the piping to equipment or appliances is tested for leaks, other tests should be run after the connections are made to stoves or equipment. Several of the deodorants used as aids to detect B-P Gas leaks were enumerated and most common methods of testing for effectiveness of such deodorants were discussed.

"Good fire fighting equipment is the best investment a B-P Gas man can make," the speaker said. Some types of extinguishers which are effective on ordinary fires will be of no help in extinguishing liquefied petroleum gas fires. He announced a fire fighting school to be held at Omaha, beginning July 8, during which some demonstrations will be made on extinguishing B-P Gas fires. Other safety subjects taken up by Mr. Smith in-

cluded safety precautions in the bulk plant, in making customers' cylinder installations and in connection with tank truck distribution.

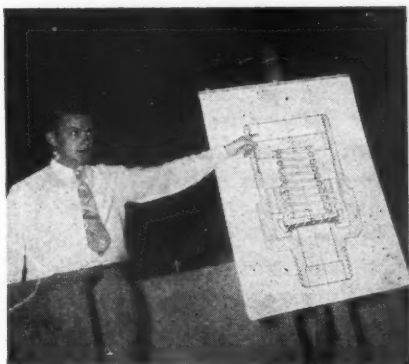
Among various cylinder testing methods two were named as in general use in connection with the subject, "Cylinder Testing," presented by C. C. Dudley, Skelly Oil Co., Kansas City, Mo. One of these is measuring the liquid that is forced into the cylinder. The other is known as the "Jacket" method, where the amount of the liquid displaced is measured. He said that the "Jacket" method is the one most generally used.

Automatic regulators were detailed by Kenneth R. D. Wolfe, Fisher Governor Co., Marshalltown, Iowa. An important part of these devices is the release valve. It is important at all times that this valve be set to operate at from 2 to 3 times the normal pressure in the regulator. While synthetic rubber and rayon were used during the war, his company will return to natural rubber for making the diaphragms as soon as available because it adheres better to nylon, Mr. Wolfe explained.

Cylinder Testing—Two Methods

The speaker described operation of trailer-type regulators. He suggested that dealers discontinue one-drum installations as they can get the equipment and return to the two-drum installations which will give the customers continuous service.

A varied exhibit of liquefied petroleum gas stove parts and equipment including domestic meters and



Ralph H. Engstrom, The Bastian-Blessing Co., Chicago.

a "Magic Chef" range were displayed on the platform and floor during the instruction and question periods assigned to E. H. Kahler, American Stove Co., St. Louis. Mr. Kahler enumerated various parts of the new ranges which are more easily accessible to service men than formerly for repair or cleaning purposes.

Gives Uncrating Information

"A service man does not now have to spend a half-day in removing and replacing a body-side panel," he declared. He also pointed out features which make the range easier to operate and clean than in older models. He also gave demonstrations from charts of proper ways of uncrating ranges in the shortest possible time without danger of damage; also proper methods of storage when the appliances begin to be received in sizable quantities.

"Service is perhaps the most important word in the business

world," Mr. Kahler asserted. "Good service builds good will. Good will, like a good name, is won by many acts—and can be lost by one. Therefore, the serviceman performs a definitely important part in the success of the business in which he is employed."

Proper delivery, handling and adjusting of a new gas range is absolutely necessary, Mr. Kahler declared. "Make all adjustments carefully and be sure that the stove functions satisfactorily before you leave the job."

How to Connect Gas Range

He gave the following instructions for connection of gas range to the gas line: (1) Never use less than $\frac{3}{4}$ -inch pipe. (2) Make sure that gas is turned off at the meter, check for other gas appliances, then make sure that every pilot and valve is turned off. (3) Connect range in the usual manner. (4) Turn on gas and check all connections for leaks. Never use a flame (lighted match) to make this check. Soap and water method is recommended for leak test of all joints. (5) Turn on top burners for a few seconds to remove air from the supply line. (6) Re-light all pilots on other gas appliances.

A number of baking suggestions, which if followed or explained to the housewife when she is having trouble, were enumerated by George H. Schlatter, director, sales and service training department, American Stove Co. "Competition from electricity and other fuels is going to be very keen," he

declared. "Now is the time to clean up our own industry and sell our gas and service properly before we get into this keen competition period."

Booklets on "The Miracle of Ice From Heat" and "How the Serviceman Can Get the Best Results from the Servel Gas Refrigerator using Liquefied Petroleum Gas," were made the basis of instruction given by Hubert Leaf, Hales-Mullaly Co., Oklahoma City, statewide distributors for Servel gas refrigerators.

"By solving the installation and adjustment problems at the start, you have done everything to insure satisfactory refrigeration for your customers," Mr. Leaf explained. "You do not have to be a highly trained technical man to be a good appliance serviceman. Our refrigerator is self-contained in every way, has no moving parts, and has a very low mortality rate on parts. These can be furnished at comparatively low cost from the factory."

No Moving Parts Big Asset

The fact that the refrigerator has no moving parts eliminates most of the service work and what is necessary can best be performed in the factory, Mr. Leaf said. Among other rules which should be followed in making installations is to leave a reasonable amount of air space under and around the refrigerator and to see that it is set level. Instruments and methods of checking to see that the refrigerators are level were explained.

District Meetings Help Dealers Find New Ways to Develop Load

THE importance of increasing summer B-P Gas loads, how to make correct butane-propane installations of systems and appliances and adaptation of these gases for motor fuel, were the principal subjects discussed at a series of meetings of the Oklahoma Liquefied Petroleum Gas Association held during May and June in six Oklahoma cities.

Places and dates of the meetings were: Lawton, May 22; Enid, May 23; Woodward, May 24; Ardmore, June 5; McAlester, June 6; and Tulsa, June 7.

Authorities on every subject were present at the meetings to lead discussions and answer questions. Although this was the first series of district meetings held by the association, total attendance at the series was 250, Fred L. Yates, executive secretary of the association, states. Lively interest was manifested by dealers, distributors and manufacturers who attended.

More Meetings Scheduled

Secretary Yates announced that another series of district meetings, probably 10 or 12 of them, is being planned for July. Each of these will be held in central locations embracing three or four counties.

Among authorities who talked on adaptations and uses of B-P Gas for power were: L. T. Smith and Ralph D. Abbott, both of the En-

sign Carburetor Co., and B. C. Robinson, Jr., of The American Liquid Gas Corp. These men gave practical demonstrations and conducted panel discussions only on the installation, maintenance and repair of power equipment. Farm tractors were pointed out as a steadily widening field for use of B-P Gases. In meetings held in Eastern and Southeastern Oklahoma, application of B-P Gas to saw mill power machinery was emphasized. In the pine timber sections of Southeastern Oklahoma there are a number of small saw mills which utilize these gases for fuel.

Interest in Flame Weeding

Eastern and Southern Oklahoma are the principal cotton growing sections of the state and here great interest has developed in flame weeding equipment and machinery. Introduced in the deep South, this equipment will soon be working extensively in Oklahoma and will help dealers materially in building up their summer loads. Possibilities of utilizing such machinery in eliminating weeds from peanut and sweet potato fields were discussed. Use of B-P Gas for dehydrating alfalfa also was discussed as an increasingly heavy summer load.

In central, western and northwestern sections touched by the meetings much interest centered about the farm tractor load. There

farms are larger, wheat and other small grains are more extensively grown and adaptation of butane and propane to farm machinery use in sowing, harvesting and threshing these crops was a principal theme.

Many of the dealers and their installers participated in the discussions on proper installations of B-P Gas systems and appliances. Particularly did they show interest in securing more universal acceptance of the idea of installing larger home systems. A general determination was expressed to avoid repetitions, so far as possible, of fuel shortages for such systems during periods of peak demand which come in the winter time in Oklahoma.

Larger storage tanks in home systems will help materially in solving this problem, speakers pointed out.

Suspend Gas Cylinders From Price Control

By Amendment 22 to Supplementary Order No. 129, May 22, the Office of Price Administration exempted and suspended from price control "high and low pressure steel gas cylinders."

In giving reasons for the suspension, the OPA states that any advance in price which may occur can easily be amortized for the cylinders "may be used for 25 to 40 years."



Attendants at the National Butane-Propane Association meeting in Fort Worth, Texas, June 10, are shown at luncheon. The district meeting was conducted by the national president, J. Richard Verkamp, and other speakers were Elwin E. Hadlick, executive vice president; C. R. Bailey, National LP-Gas Institute; W. E. Fraley, retiring president, Texas Butane Dealers Association. Subjects discussed included safety, cylinder testing, insurance, freight rates, Federal and State regulations, design of equipment, and supply of materials and fuel.

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Who's Afraid of the REA?

By PAUL LADY*

A COUPLE of years ago we published an article entitled, "Who's Afraid of the REA?" and I know of no better phrase with which to introduce to butane men the subject of electrical competition. Those with short memories or timid dispositions might do well to jot it down in their hat bands, for never has a man selling liquefied petroleum gas any need to think that his product is inferior to, or more costly than, electricity.

The Rural Electrification Authority has a creditable objective in extending cheap power to many outlying communities. Even owners of B-P Gas systems can frequently use it to their advantage, but when flexibility, reliability of service and cost of energy are considered, dealers need not fear it competitively nor the whole electrical industry.

When salesmen have complete faith in the virtues of the article they sell, half the battle is won. But even better than faith and loyalty is understanding. When you know why your product is superior to competitive fuels and can competently explain the reasons there-



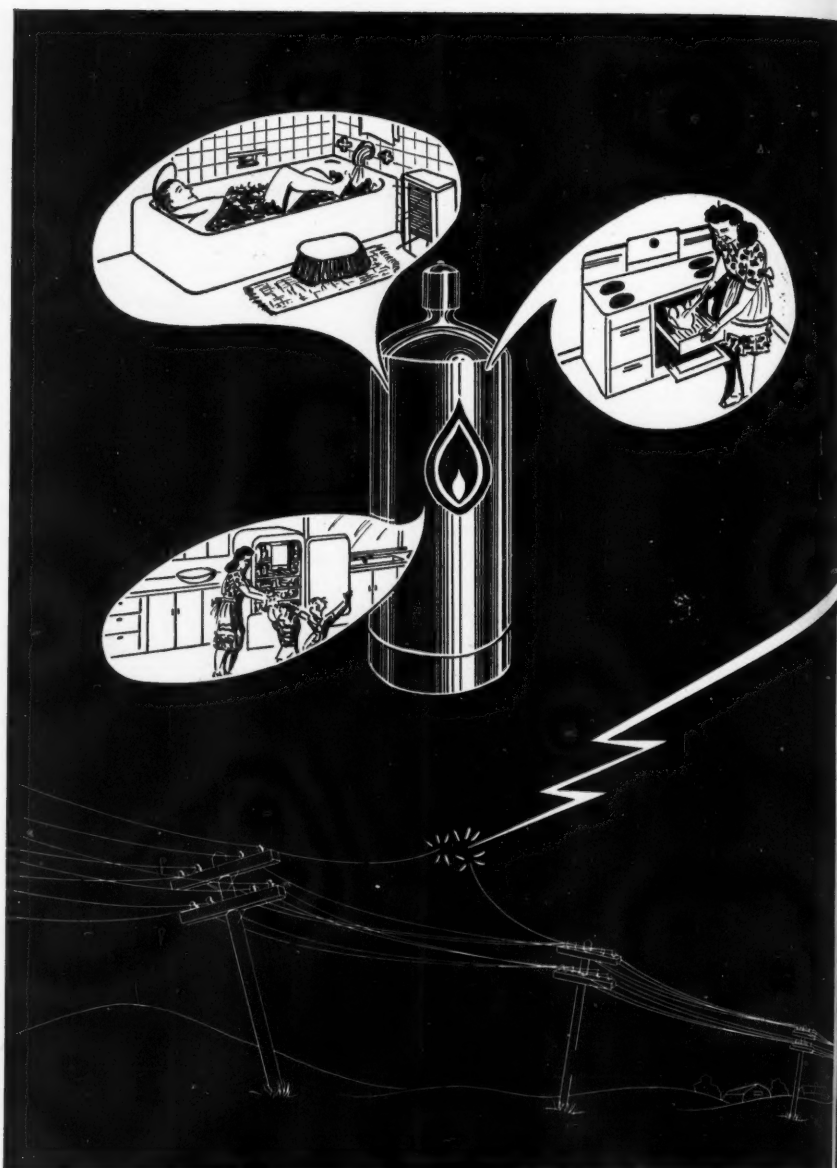
Paul Lady—not afraid of competition, especially electricity.

for to your prospects, there is little left for you to do but present a contract for signature.

To some, it may sound like a broad statement to say that butane and propane can always outpoint electricity in cost and service to the user. It sounds like bragadocia. Maybe it is, but the purpose of this paper is to demonstrate the truth of the statement and to give you actual facts to back it up. If we prove our point to your satisfaction we will both be rewarded for the time invested.

The value of a fuel to a user is

* A paper read at the June 11-12 meeting of the Texas Butane Dealers Association, Fort Worth.



"The value of a fuel to a user is measured by its ability to **UNFAILINGLY** perform needed services." (See opposite page.)

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measured by its ability to *unfailingly* perform certain, needed services. What that user has to pay for such convenience is important, but secondary.

First, then, let us examine the merits of liquefied petroleum gas and electricity — determine what function each serves, how well each fuel performs and the dependence a consumer can place upon each.

For domestic, commercial and industrial applications butane and propane (and other gaseous fuels, as well) hold prestige over electricity primarily because the full input value of the gas can be delivered instantly upon lighting to the object to be heated. And as quickly cut off. Electric elements require time to heat or cool off.

Gas burner flames can be regulated to give out any part of their full input value by turning the valve. Electric appliances may have one, two or three "speeds" but these are not subject to fine adjustments.

Can't Store Electricity

The fundamental weakness of electricity is the inability to store the power at the point of use and, therefore, to have sufficient power for peak demands. As a consequence, all electrical appliances are designed for a minimum peak demand factor, which is illustrated by the large water heater tank with a slow recovery rate and a cooking oven which requires time to bring to temperature and the inability to get high input rates for searing meats and brown cooking.

The gas range and other appliances can be designed with a tre-

mendous over sizing of the heat input which gives a peak flexibility for quick cooking, fast water heating and rapid space heating. This capacity is only needed for short periods during the initial operations, after which the flexibility of the control of the gas flame allows for complete range of heat inputs from the maximum to a minimum simmer flame.

This design is possible because the source of supply of the fuel is on hand at the user's premises for instant demand.

Electrical Input Limited

For instance, an average range oven is designed for about 21,000 Btu input. This is instantly delivered upon lighting the burner. An electric oven of similar size will permit only from 10,000 to 13,000 Btu's input. This is due to the fact that if larger electric units were installed, the sudden and immense demand for load at peak hours would require larger transmission-lines and larger transformers, greatly increasing costs to the electric companies and ultimately to the users. The companies protect themselves by limiting the amount of electricity that can be applied to the customers' needs.

The same is true to a greater extent in water heating. Electric companies sell large capacity, slow recovery heaters so users will have a reserve of hot water to tide them over the hours of peak demand. On many electric water heaters there are installed time switches and a separate line to the heater in order to compete with gas and to

prevent heavy demand at peak hours. They are even set to cut out the input to the water heater between the high-peak hours of 7 to 8:30 a.m., 11:30 to 1:30 noon and 5 to 11 p.m.

Water Heater Recoveries Compared

A 20 gallon gas water heater with 21,000 Btu input will have a recovery of approximately 25 gallons an hour for a 100° rise. In contrast, a 66 gallon electric water heater will only have a recovery rate of 12 gallons per hour under the same conditions.

In such cases it is necessary to install an unusually large and expensive storage tank to care for the normal demands of a household during those peak hours.

B-P Gas systems are less costly to install than electric ones. The first cost of gas appliances is less. They are more economical to maintain and operate. They last longer!

As a matter of fact, the life of gas burners is practically unlimited, with no variation of service meanwhile, while electric elements become progressively inefficient from the first day of use, due to the scale of oxide that is formed on the heating units. It is not long before this scale can cause a loss of 50% of energy exchange.

While the American Gas Association and the United States Department of Commerce state that 3.52 KWH is equivalent to one pound of propane for domestic cooking, these figures are based upon comparative tests of new electric and gas ranges, whereas the efficiencies of electric ranges are

frequently cut in half after being in service a short time.

But even if 3.52 KWH is used for argument, and with the average U. S. price of electric juice at 2.2 cents per KWH for cooking, you could even get 7.39 cents per pound for propane and still break even competitively. Gentlemen, what have you to fear when a breakeven price is so much more than your prevailing rates? It is easy to see from a competitive price basis, butane and propane dealers can always be assured of having an edge on electricity.

While we are upon this subject of electric rates, it should be explained that electric companies have been shrewd enough to establish different rates for different services.

How Texas Rates Differ

In your own state, as an example you will find that electric rates in the refrigeration bracket (75KWH) are as low as 1.9 cents per KWH in Hallettsville and Tulia (Do you pronounce that name right?) and jump as high as 6.2 cents per KWH in Andrews. So, to meet the low rate in the first towns named the butane dealer can sell for 2.85 cents per pound for liquefied gas to be on a breakeven basis, but in Andrews his price may be as high as 9.3 cents per pound.

This unnatural basis of electric price structure is explained in a publication of the Federal Power Commission entitled, "Typical Electric Bills," as follows:

"In determining the amount of electric energy to be considered in

each of the increments for the four blocks of residential service, an effort was made to show typical bills for customers using energy for lighting and small appliances; for refrigeration, lighting, and appliances; for cooking, refrigeration, lighting and appliances; and for water heating, cooking, refrigeration, lighting, and appliances. A study of customer consumptions shows that the typical customer having lighting and small appliances only, uses an average of approximately 25 kwh. The customer who uses energy for lighting, small appliances, and refrigeration characteristically uses somewhat more than 25 kwh. for lighting and small appliances. His total consumption will approximate 100 kwh. As the refrigerator is usually the major appliance added in the 25 kwh. to 100 kwh. block and as special refrigeration rates, if any, were applied, this consumption block is designated as being principally for refrigeration. The average charge shown for this increment, therefore, represents the average charge per kwh. for energy used for refrigeration within the added 75 kwh. block regardless of the portion of the total actually used by the refrigerator. The same situation holds true to some extent for the blocks used principally for water heating, 250 kwh. to 500 kwh."

How Rates Are Fixed

This shows lighting to come first, then small appliances, refrigeration, cooking and, lastly, water heating. The customer pays a descending rate for the more services he uses.



A fuel storage plant that is always ready to serve the owner's needs—at any hour, in any volume of gas. It serves all appliances at once as well as if only one pilot light is burning. This is a typical propane single cylinder installation for a home. It is being refilled from a tank truck.

He pays the highest rate for lights, which he usually needs first and most. Next, he wants to cook, but to get the low cooking rate he must install some small appliances and a refrigerator. The water heating load, least desired of all by the electric companies, is available at special rates only if all other appliances named are installed.

Liquefied gas customers buy a tank of gas at the market price and hook it up to such appliances as they choose, without penalty and without additional cost. Here is where dealers, selling at a base price, can offer an average cost that will terrifically beat electric competition.

Many of you dealers no doubt

have copies of C. C. Turner's book "The Bottled Gas Manual," wherein two chapters are devoted to basic comparisons of liquefied gas and electricity. With such information mastered, you have ample facts with which to combat competitive claims.

Gas Equipment Has Long Life

Equipment costs also favor gas installations. Cylinders, pigtaills and copper or steel piping last indefinitely. Burners never deteriorate, as stated. Tapered gas cocks fit tighter with every day of use. Electric switches have contacts which wear, corrode, pit, and eventually require replacement. Electric energy is conveyed through insulated wires which break down from use and weathering and which form dangerous fire hazards unknown to gas piping systems.

And speaking of fire risks reminds us that, according to the National Board of Fire Underwriters, 9.9% of all fires are caused by electricity, as compared to 1/2 of 1% being caused by natural, manufactured and liquefied gases, combined.

B-P Gas users will find their fuel superior to electricity for all uses because of the fast, hot flame, controllable to any speed; for guarantee of supply and for low cost.

All of these facts give assurance to the liquefied petroleum gas salesman of the superiority and the economy of the fuel he sells, but back of them all is the fundamental reason why electricity can never give the service that gas does, nor sell for a lower price—the fact that it cannot be stored.

No, electricity cannot be stored! It cannot be pumped into stationary vessels and kept ready for instant withdrawal. It cannot be stored at point of use or at point of origin or along the transmission line. It must be used as fast as it is made or its potential is wasted.

Visualize, if you will, a great generating plant that cost millions of dollars to construct, and hundreds, even thousands of miles of high power lines and hundred of thousands of transformers, all part of one system.

At hours of low demand, this investment and this equipment are in slack use, but when the housewives are cooking meals, or washing clothes; when refrigerators are fighting hot spells of weather, and when everybody is bathing on Saturday night, there is a sudden surge of demand upward.

Transmission Costs High

The system must be big enough to care for the heavy-demand hours and somebody has to pay for this. You can bet your life it is not the power companies. It's the user! The cost of generation is comparatively low, but the cost of transmission and maintenance is tremendous.

Another vital place where butane and propane excel electricity as sources of heat and power lies in their reliability and dependability. With individual storage for every user, there need be no time when fuel is not instantly available in full capacity.

Electric power lines are subject to breaks from mechanical causes and from storms, fires and other

interruptions. When these occur, users are completely deprived of energy. If electric companies were to protect their customers against power failures they would have to install a duplication of distribution facilities, with resultant high costs, and in marginal districts this isn't being done.

Texas dealers and dealers all over the land can feel confident of their ability to lick electric competition, but they can do this easier and better if, as a group, they work together for the good of the industry, and themselves, as well. That is where your association comes in. You have banded yourselves together to solve your state-wide problems, to advance safety standards, to raise the quality of service, to present an united front to the people of Texas and to competitors. In your numbers and your objectives lie your strength. Don't forget this when the going gets rough. And if you work together to sell G A S to your public you will probably chase every other fuel clear out of the state of Texas!

Gas—A Better Product

You don't need to cut rates to get the load; you don't need to exaggerate the virtues of your fuel. You have a way better product than electricity for nearly every purpose, and you can beat them on price right down the line.

So, if you have had any doubts, discard them. Get out in the field and sell. Sell everybody who needs fuel. Sell domestic accounts. Sell commercial accounts. Sell to industry. Sell to the internal combustion engine field. Most of all, sell

the farmer. Your future is closely allied with him.

And don't forget to sell summer accounts in fair proportion to your winter heating contracts—for to prosper, you must have a balanced load!

Texas-California Pipe Line Approved by FPC

Construction of the \$70,000,000 Texas-Los Angeles pipe line which is planned to deliver ultimately 305,000,000 cu. ft. of Texas natural gas daily to Southern California consumers, was authorized by the Federal Power Commission in a formal order in June.

The 1200-mile, 24, 26, and 30-in. line—the first pipe line to span completely the Continental Divide, and the largest ever constructed, will be built by El Paso Natural Gas Co., El Paso, Tex., and two subsidiaries of Pacific Lighting Co., Southern California Gas Co. and Southern Counties Gas Co.

NFPA, 50 Years Old, Pleas for Safety

The 50th Anniversary meeting of the National Fire Protection Association was held in Boston, June 3-7. "Building a Safe America" was the keynote.

Dr. Foster D. Snell of Brooklyn, nationally known chemist, was the featured speaker at a meeting of the NFPA Fire Marshals' Section which was held June 3.

Other speakers were Leonard C. Lund, Minnesota fire marshal, Edward H. Whittemore, State fire marshal of Massachusetts, and Edward N. Montgomery, chief, bureau of fire prevention of the Boston fire department.

B-P Gas is Solution to Peak Loads, AGA Conference is Told

A COMPLETE and exhaustive symposium on liquefied petroleum gas highlighted the 1946 Joint Production and Chemical Conference held under the auspices of the Technical Section of the American Gas Association, June 3 to 5, in New York.

A variety of ways in which liquefied petroleum gas, notably propane, can be used to solve the peak problems of the manufactured gas industry were discussed at length in the gas symposium.

R. E. Schneider, of New York, detailed the work that is being planned by his company, Consolidated Edison of New York, Inc., in connection with its newly installed 10 Mcf per-day capacity propane-air plant. In addition to increasing the peak load send-out by the amount of propane-air that can be practically incorporated in the normal output, this company is planning further study in the use of liquefied petroleum gases through reforming cold enrichment of low Btu gases.

The Consolidated Edison Co. is doing extensive laboratory work to determine the character and amount of modified gases that can be intermittently introduced into the system without adjusting consumers' appliances.

The experience of the Citizen's Gas and Coke Utility, Indianapolis,

with propane was presented by B. P. Mulcahy. This plant has been operating for three years, using undiluted propane for cold enrichment of water gas. He also described experience incidental to underfiring coke oven batteries with 600-Btu propane-air. His conclusion: "Propane equipment is very flexible, easy to handle, and offers very little difficulty."

The liquefied petroleum gas installation at the West Conshohocken plant of the Philadelphia Electric Co. was described by E. G. Boyer, who presented charts and data accumulated in this operation. The plant to date has used only butane, but the equipment has been designed so that either butane or propane may be used.

The company is testing appliance performance on a laboratory scale, to provide data for use next winter when it is estimated the send-out specific gravity on maximum days will be between 8000 and 12,000 Mcf.

Automatic Butane Gas Co. Moves Into New Home

Winfred G. Ellis, owner of the Automatic Butane Gas Co., Houston, has moved his office and plant from 2204 So. Main St., Houston, Texas, to 4501 Greely St.

The new headquarters are owned by the company.

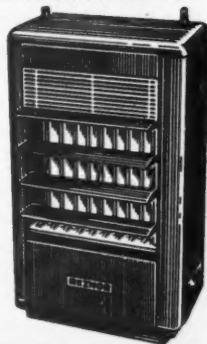
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1. Attractive installation.
2. Easily installed.
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4. Low cost installation.
5. Installed where you want it.
6. Installed from the ceiling.



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Utilization of LP-Gas By The Natural Gas Industry

By FRANCIS E. DRAKE*

Pacific Gas Corporation, New York City

In Two Parts—Part II

Freight Rates

At this point I want to call attention to the discriminating freight rates imposed against the Northern vs. the Southern LP-Gas operator.

South of an imaginary East-West line the freight tariff on LP-Gases is based upon a weight of 4.7 lbs. per gallon, from group 3 Oklahoma for example, while North of that same line the weight paid for is 6.6 pounds per gallon. Now we all know that the weight of propane is 4.24 pounds per gallon while butane is 4.85 pounds.

I am not criticizing the Southern operator for obtaining correction of a long standing injustice which he succeeded in doing several years back, but I do criticize us Northern operators who continue to allow such discriminatory injustice to continue. Only by aggressive cooperation of all concerned can this flagrant disregard for justice and equitable freight rates be ironed out.

Therm Billing

I believe one of the main reasons why propane and butane has not

been more generally used for substitution and/or augmentation has been the fact that higher Btu's are required for the substitute gas than supplied under the rate schedule in the original gas.

This, it seems to me, is far-fetched and narrow when it comes to the point of proper service or no service at all. In the natural gas industry as in the manufactured I know it to be true that figuratively speaking "The fires shall never go out" and "service shall be rendered no matter what the cost."

It seems to me that we in the industry have been slow and lax in fathering, fostering and pushing the therm in substitution for the cubic foot. To be sure, many commissions as well as consumers are antagonistic. However, with proper education and continual pressing, the therm form of billing can be introduced. The day of the cubic

NEXT MONTH there will appear in "Butane-Propane News" an article entitled "Propane Gas Versus Water Gas in Small Plants and Systems"—a discussion concerning the use of liquefied petroleum gas in manufactured gas plants.

It is a paper which was delivered before the Midwest Gas Association by F. T. Carpenter and F. H. Andrews of the United Petroleum Gas Company, Minneapolis and Chicago.—Editor.

The foot and candlepower is gone. This is the day of the Btu and has been for a number of years. Why continue with the old forms and tools when so many new, more modern, are available?

One of the strong arguments against the cubic foot form of rate is there is no uniformity in Btu requirements in any of the states. With the advent of heat requirements the old form of billing became obsolete. Still we in this country have continued doggedly to maintain the old cubic foot standard for billing which in Massachusetts means 528 Btu; New York, 37; Indiana, 570; Pennsylvania, 25; etc.

Hardly any states maintain the same standard, all of which means that the consumer in Massachusetts who pays 10 cents per hundred for gas gets 52,800 Btu for 10 cents, while the person in Indiana gets 57,000 Btu for the same money. Thus it develops that the consumer in Massachusetts whose meter registers 1,000 cubic feet of gas actually obtains 5.28 therms, while the individual in Indiana receives 5.7 therms for exactly the same money.

Use Simplest Method

How much simpler it would be if all rates were on a therm basis and we knew that our Indiana friend's price of 17.5 cents per therm was a direct comparison with our Massachusetts friend's price of 18.9 cents per therm. To the average individual, in billing 10 cents per hundred or \$1.00 per thousand in any state means one

and the same thing; whereas, actually our Indiana friend pays 7.4 per cent less for his gas than our Massachusetts friend.

The tremendous increase in natural gas available throughout the country has necessitated a careful study of rate structures, standards of heating valves and method of computing gas bills. I think we all agree that, irrespective of kind of gas supplied, its true value to our consumers is directly related to the heating value.

Why then should the natural gas man who through washing out of a pipe line or overloading and who augments or supplements with 1300 or 1600 Btu gas, not be reimbursed for those heat units the consumer has had rather than have them come to him free?

Buy Gas by the Therm.

It has been the custom for years, in purchasing coal in large quantities, to purchase it on a heat unit basis and the price usually varies with the thermal content. Why shouldn't gas, even in small quantities, be purchased and sold on the same basis? A therm, as used in present day discussion, is as definite a unit of measurement as a cubic foot, pound, gallon, etc., are units of measurement.

The therm method of computing gas bills is merely a new method of expressing the old unit of gas charge. If the unit charge for gas is expressed in terms of cubic feet this does not always, under varying conditions, accurately express the correctness and reasonableness of the charge without a statement as

to the Btu content of the cubic foot measured. Really the only true value of the gas to any customer lies, not in the volume but, in the heating value.

When correctly applied, there is no difference in the consumers' bills for the same amount of energy or service, whether computed by the therm or the cubic foot method. The difference lies not in the charge, but in the method of stating that charge.

Considered Vital Issue

All of the foregoing may be considered irrelevant to the subject of utilization of LP-Gases but I disagree. It, to me, is a vital issue and one of the main reasons why greater progress has not been made in the utilization of LP-Gases as supplemental to natural gas. A distributor of natural gas of say 1000 Btu gas hesitates to send out 1300 Btu gas in substitution, because the customer receives 30% additional heat units for which the natural gas man is not reimbursed. Only the more philanthropically inclined and those companies most powerful financially can justify to their directors such a gift, and yet in the long run it is money well spent in retaining the customer's good will through continuity of proper service.

With a therm rate a utility could utilize the greater heating value of propane and/or butane gases to advantage and the customer would be just as well satisfied, not knowing the difference in gases unless told by the utility.

Before closing may I call your attention to what I consider a still further advance forward in the matter of billing gas. That is split the therm into smaller units say a "unit" representing one-tenth of a therm or 10,000 Btu. This has been done on the Pacific Coast.

Or go a step farther and follow a suggestion made some years ago by a now deceased president of the New England Gas Association and establish an American thermal unit (A.t.u.) of 4,000 Btu's. This more nearly approaches our electrical brothers unit of kilowatt hour which is made up of 3412 Btu's. What a lovely comparison it would make from the gas man's standpoint, if we had, say, a 24-cent per therm rate split down into 10,000 Btu. "unit" or an "A.t.u." of 4,000 Btu. Here is how our rates would look:

<i>Therm Rate</i>	<i>Unit Rate</i>	<i>A.t.u. Rate</i>
24c. net	2.4c net	96/100c net

Now that 96/100 cent "A.t.u." would be the gas man's top rate and would compare favorably with our electric brothers' top rate of probably 5 cents per kilowatt hour, or putting the two side by side, we have:

Gas man.....	96c for 4,000 Btu.
Electric man.....	5.00c for 3,412 Btu.

Here are grounds on which the gas man, be he natural, manufactured or a combination of the various types, has a distinct advantage and a lead over our keenest present day competitor, particularly if

ECONOMY SPHERES



A.S.M.E. Code constructed with standard approved fittings. Now available for storage and transport of either Butane, Butane-Propane mixtures, or Propane. Capacities of 150-250-430-1000 water gallons for above ground installations and truck mountings. Write for details.



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Dallas, Texas

he will use the various tools presented such as LP-Gases to augment and maintain service at all times and under all conditions.

In closing I know there is one question upper-most in your minds—What is the future of LP-Gas? What will the price be? Will it be available in quantities?

Statistics prove that during the war much LP-Gas was used for synthetic rubber which as time goes on must be utilized by someone. The refineries also today are not, in many instances, reclaiming the propane that they might if there was sufficient demand. Also, by the addition of small sections to their stills, they say the production of propane can be increased.

As to raw material prices, undoubtedly all raw materials will advance but as has been the industry's experience in the past, any change in one raw material will be reflected by a corresponding change in related materials. With LP-Gases, however, contracts are being made today on a two-year basis and from all information I am able to gather, the prospects for the future are brighter than ever before with a plentiful supply of gases at a reasonable price.

Liquefied petroleum gases have earned a place in the utility industry, the future of which will belong to those who can and will adapt their methods to the needs and desires of the consuming public. The hurdles presented by the fast-growing peak load will, I am sure, be surmounted successfully by the co-ordination of engineering, sales and rate developments.

C. W. Guy Designs B-P Gas Bookkeeping System

C. W. Guy, certified public accountant, vice president and chief accounting officer of the General Gas Corp.



C. W. GUY

Baton Rouge La., has written a book showing the necessary forms for a complete bookkeeping system for retail LP-Gas dealers.

This system reflects the results of Mr. Guy's eight years of exclusive LP-Gas accounting experience. The forms

are simple, yet designed so that complete, accurate information on all phases of a business can be made available quickly.

Complete explanations are given showing the operation and use of each form and its relation to the other forms in the system.

Printing specifications are shown for each form, which the dealer can give to his own printer for his guidance in preparing the forms.

This system contains a complete inventory control record, payroll and social security system, and a freight rate guide which, alone, may result in the saving of many dollars in freight over-charge errors.

The sales forms are designed to eliminate misunderstandings between the dealer and his customers, which is particularly valuable in establishing and keeping good will.

Dealers interested in further information about this book should write directly to its publisher, The Magnolia Publishing Co., P.O. Box 2470, Baton Rouge 2, La.

QUIZ

Installing Water Heaters

• This department is a monthly feature to stimulate thought and to give operators basic industry facts. Clip out for your notebook or file in a standard, 3-ring, loose-leaf binder. Sources of information: The Bottled Gas Manual, Handbook Butane-Propane Gases.

Questions

Answers

1

What procedure should be used in selection of a water heater for a customer?

A check of the present hot water requirements of the home should be made, allowing for the addition in the future of more hot water utilization appliances.

2

What is a good recommended practice to follow?

The recommendations of the Pacific Coast Gas Association will give satisfactory results:

Number of Bathrooms	Number of Bedrooms	Storage Capacity
1	1 or 2	30
1	3 or 4	40
2	2 or 3	40
2	4 or 5	50
3	3	50
3 or 4	4 or 5	75

3

In restaurants and commercial installations what is the best policy to follow?

Install ample capacity. They often have very high peak loads and an undersized water heater will not provide sufficient hot water at times when most needed.

4

Where should a gas water heater be located?

In a location close to hot water outlets, where it is accessible for servicing and has an ample supply of air for combustion, and near a suitable vent.

5
Where should B-P Gas water heaters not be located?

6
Should water heaters be vented?

7
Where should the gas shut-off cock be installed?

8
What is the minimum area for free air circulation when a water heater is installed in a porch cabinet or in a small enclosure?

9
What care is necessary in the water piping?

10
What type of automatic water heater should not be used in a B-P Gas installation.

Under stairs, in closed, small areas or basements (unless provision is made for fixed ventilation), bathrooms or bedrooms.

All water heaters should be vented, eliminating, if possible, any horizontal runs in the vent pipe, and allowing a minimum of 6" between the top of the down draft diverter and the vent inlet.

A gas shut-off cock should be installed ahead of the water heater controls and the union connections.

Two openings should be provided, one near the floor and one near the ceiling, each having a minimum area of 136 sq. in., and openings should be covered with a grill or louvers.

All storage water heaters have a cold water inlet that extends nearly to the bottom of the tank. Be sure to connect the cold water supply into this connection.

Water heaters without a full automatic pilot and main burner shut-off valve.

● Competitive Fuels ● Wood, Coal, Oil, Electricity ● Gas Lighting ● Space Heating
● Tools for Your Kit.

Training Servicemen

Gas Refrigerator Servicing

By C. C. WESTMORELAND

TRAINING new appliance mechanics to service gas refrigerators is not, in general, more difficult than training new people to service other types of appliances. In fact, refrigerator servicing is easier to cover in some respects than other subjects—since but one manufacturer's product need be studied.

Continued improvements necessitating minor construction revisions have been made in the gas refrigerator, but frequent radical changes have not occurred to complicate servicing procedures. By comparison, the great variety in ranges and range accessories requires that considerable time be devoted to training in order to cover, even briefly, major variations in design, operation of controls, and other automatic features.

In the gas refrigerator, the absence of moving parts and the long life of controls, burners, and other accessories, reduces the number of service problems involved and tends to simplify the service training procedure.

The mystery surrounding the apparent unorthodox phenomenon of freezing with heat is the first point that needs to be treated in order to remove apprehension in the minds of students when they approach instruction on gas refrigerator servicing.

Servel, Inc., evidently recognized the need for this type of instruction by publishing the pamphlet, "The Miracle of Ice from Heat." This pamphlet is well organized and clearly demonstrates the principles utilized. Its use should not be overlooked as a means of describing the physical principles involved

MANY NEW MEN are entering the liquefied petroleum gas industry. They will be dealing with a product, equipment and appliances which require specific knowledge.

They, and men of experience, as well, can profit from information experts have accumulated.

Average dealers are often handicapped by a lack of time and facilities in giving proper instruction to their servicemen and installers. Large organizations make this a regular department of their business.

Good ways that some experts have learned to handle service problems are now being

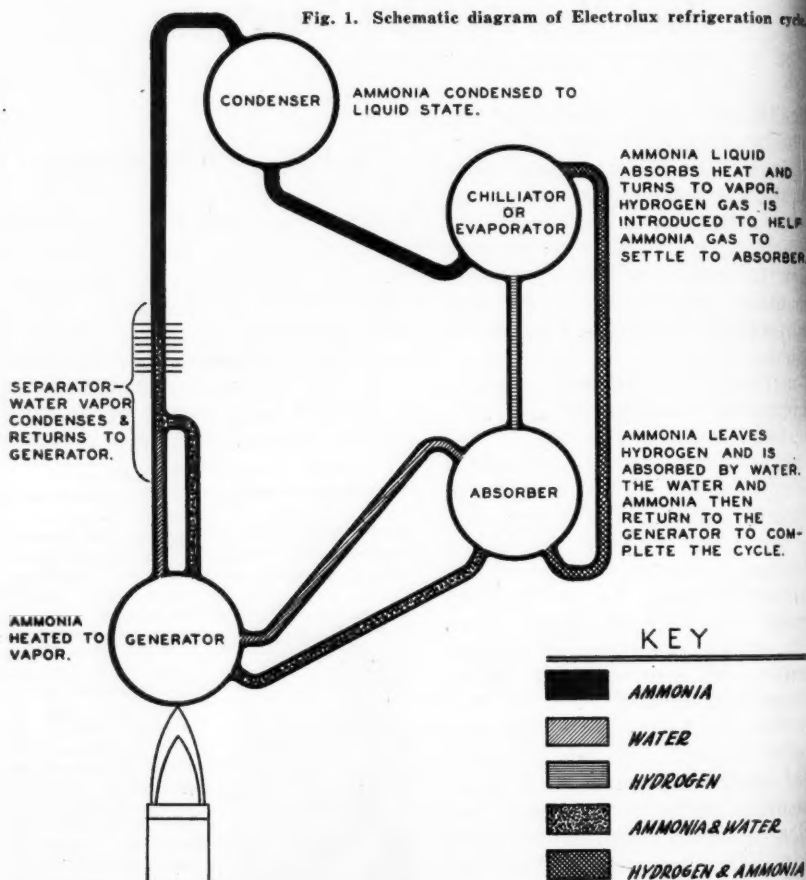


C. C.
WESTMORELAND

made available to readers of BUTANE-PROPANE News through a series of articles written by C. C. Westmoreland for natural gas utilities, large and small, and in their presentation here have been edited as to their applicability to the B-P Gas industry by Harold W. Wickstrom.—Editor.

Simplified Refrigeration Cycle

Fig. 1. Schematic diagram of Electrolux refrigeration cycle.



Description of Above Drawing:

When heat is applied to the generator, which is filled with a solution of ammonia and water, the ammonia is vaporized and forced upward into the separator together with a part of the water.

The water and ammonia vapor is forced up into the separator through a small pump tube in the same manner that water is forced upward over the grounds of coffee in a percolator type coffee maker.

From the separator the ammonia vapor rises to the condensor where

For a Better Regulator

LOOK TO RONEY



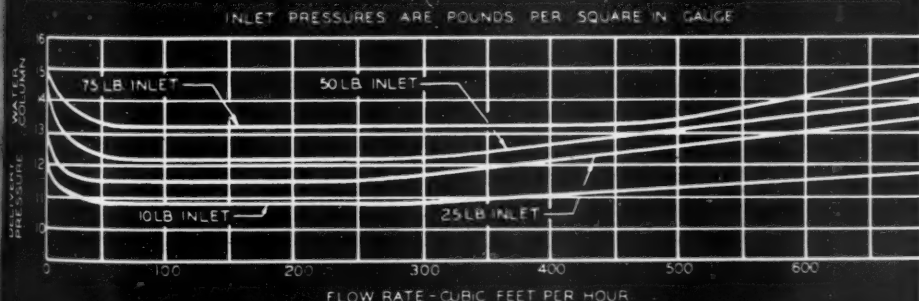
RONEY R-400
Does all the jobs

The Roney R-400 Regulator is a new design that covers the range of domestic, commercial and industrial applications with the ease of larger diaphragm regulators. This versatility eliminates the need of selecting a special size regulator for each job. For tank manufacturers or dealers, this means an extremely flexible assembly.

The body and bonnet of this compact

unit are high strength die castings. The internal relief valve is an approved safety device constructed as an integral part of main diaphragm.

Typical performance of R-400 Regulator on commercial loads is shown in chart below which applies to special spring setting used when an artificially heated tank or flash vaporization system maintains a 10 lb. inlet pressure.



L.C. RONEY INC.

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heat is removed by the cooling medium of either air or water, and the vapor is returned to a liquid state. In its liquid form the ammonia now flows by gravity into the freezing unit or evaporator where it is vaporized once more.

The vaporizing of the ammonia in the freezing unit absorbs the heat from the refrigerator to produce refrigeration. The ammonia has an affinity for hydrogen so that when the ammonia is vaporized it combines with hydrogen rising from the absorber. The vaporized ammonia then is carried from the freezing unit to the absorber in an atmosphere of hydrogen. Inasmuch as ammonia and hydrogen together are heavier than pure hydrogen, the cycle continues between the absorber and freezing unit.

The water previously left in the separator maintains a constant level between the pump tube of the separator and the water inlet of the absorber where it picks up the ammonia brought there by the hydrogen from the freezing unit.

Since ammonia has a greater affinity for water than it has for hydrogen, the ammonia leaves the hydrogen and goes to the water when the three are brought together in the absorber. The water and ammonia then flow by gravity to the generator, completing the cycle.

in the operation of the refrigeration cycle.

Fig. 1 was developed as a means of supplementing the introductory material taken from Servel, Inc., publications. The drawing, which is purely schematic, has been use-

ful in summarizing the general operation of the unit.

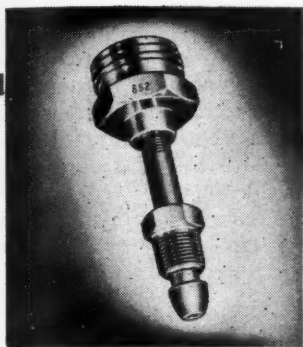
It has been found advisable to schedule instruction on this subject at a fairly early stage in training. At one time, refrigerator servicing was placed at the end of the training period so that the classroom instruction would be fresh in the minds of students when they went into the field. The advantages of that routine were offset by students' continued concern about the much dreaded final subject.

When the sequence was changed to give refrigerator servicing earlier treatment, the students' confidence in their ability showed marked improvement. Such an arrangement also has the advantage of allowing men to review the subject while they are still in training and raise questions which may come to their minds after formal instruction has been completed.

Correct Installation Is Vital

In common with other precision equipment, gas refrigerators must be properly installed and adjusted to rather close tolerances for best performance. Since the serviceman has little control over the installation of a refrigerator, that problem need not be treated at length here.

It will suffice to say that it has become profitable for utilities distributing gas refrigerators to police closely the installations on their lines as one means of reducing service calls. Adjustments of orifice sizes, gas pressures, thermostats and water controls are decidedly within the serviceman's scope of duties and need emphasis in training. Briefly stated, then, gas re-



No. 852
Hose to P.O.L.
Adapter

**BETTER FITTINGS
IMPROVE
YOUR PRODUCT**



No. 836
Adapter for Hose to small
Filler Valve and Vapor
Return

*Selwyn
Landers*

ADAPTERS

Call them what you like, Adapters, Connectors or Couplings they are the L. P. G. man's handiest tools. - - And examples too of Selwyn-Landers quality.

All S-L products are especially designed and carefully built to the finest detail - - the threads, machined radii, knurling, finish, inspection and shipping.

Especially do we strive with equal diligence to care for our customers who depend upon us for fine quality.

ROTARY GAUGES

RELIEF VALVES

FILLER VALVES

P.O.L. PIGTAILS and

ADAPTERS

FIXED LIQUID LEVEL GAUGES

VAPOR RETURN VALVES

CYLINDER VALVES

SLIP TUBE GAUGES

L. P. G. REGULATORS

and many others

SELWYN-LANDERS CO.

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DESIGNERS and MANUFACTURERS of L.P.G. EQUIPMENT

frigerator service training is characterized by two points.

1. The scope of training is relatively narrow due to standardization of models and simplicity of operation.
2. The need for precise and accurate adjustments makes it advisable for instructions to contain clear-cut step-by-step routines including specific recommendations to be followed when servicing gas refrigerators.

Use of Cut-a-way Unit

The next step is to relate the general principles discussed on the schematic chart to a cut-a-way unit which has been painted to correspond with the unit diagrams published by Servel.

The instruction involving the use of the cut-a-way unit is intended

Fig. 2

JOB BREAK DOWN SHEET FOR TRAINING MAN ON JOB

Part: Electrolux Refrigerator. Operation: Service procedure in conjunction with turn-ons.

Important Steps in the Operation

Step: A logical segment of the operation when something happens to ADVANCE the work.

Light-Up Trip

1. Turn on water and determine that water is flowing on water-cooled models.
2. Purge.
3. Test Klixon.
4. Light burner.
5. Observe that flame "draws" into the generator.
6. Inspect maximum flame characteristics and adjust air when needed.
7. Test minimum flame.
 - a. Adjust as needed.
8. Contact customer.

Key Points

Key point: Anything in a step that might Make or break the job;
Injure the worker;
Make the work easier to do, i.e., "knack," "trick," special timing, bit of special information.

2. a. At lighter adjustment.
 - b. Purge completed when odor of gas is detected or when decided change of sound is noted.
3. Place lighted match at burner. If gas is present, shut off gas and change burner for new unit.
4. a. Hold lighted match to end of lighter tube.
 - b. Press button.
 - c. Play the flame on both the Klixon disk and the end of the burner.
 - d. Release the button when the burner lights and an audible click is heard.
5. a. Let the generator heat up while lighting other appliances or draw the flame into the generator by blowing through a metal tube placed at the side of the flame.
 - b. If draft will not pull flame into the generator, close gas supply to the refrigerator and check items in Fig. 3.
7. By noise, blowing, etc.
8. Acknowledge work performed, and instruct customer on defrosting methods, if the customer is not familiar with that procedure.

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News

ATING . . . SAFELY!



**NEW! REGO COMBINATION QUICK FILLER
AND BACK PRESSURE CHECK VALVE* OF-
FERS MAJOR OPERATING ADVANTAGES!**

Make sure! Specify the new RegO No. 3178 Valve for LP Gas storage containers. You will get all the operating advantages of quick-filling . . . and, in addition, you can evacuate containers equipped with this valve and a dip pipe when a RegO No. 3118 Unloading Adapter is used on the hose coupling

The high "safety-factor" achieved during unloading operations when utilizing this new RegO No. 3178 Filler Valve in conjunction with the RegO No. 3118 Unloading Adapter is due to the fact that *at no time is the operator subjected to the hazards of free-discharge of either liquid or gas!*

IFY . . . and get . . . RegO DEPENDABILITY and SAFETY!

*Meets Underwriters' and other safety requirements.

REGO
LP GAS EQUIPMENT

The **BASTIAN-BLESSING** *Company*

4201 W. Peterson Ave.

Chicago 30, Ill.

5 POINT ANALYTICAL SUMMARY

FOR

PROPER GAS REFRIGERATOR OPERATION

①

LEVEL OF UNIT

THE FREEZING UNIT SHOULD BE LEVEL IN BOTH DIRECTIONS

②

THERMOSTAT

MUST BE OPERATIVE AND IN PROPER CALIBRATION

③

INPUT

AUTOMATIC SHUTOFF IN PROPER OPERATION
BURNER IN CORRECT ADJUSTMENT AND PROPERLY
SPACED AND ALIGNED WITH THE FLUE
ORIFICE CLEAN AND PROPERLY SIZED

④

OUTPUT

SATISFACTORY DOOR SEAL

⑤

CUSTOMER UNDERSTANDING

PROPER LOADING OF THE FOOD COMPARTMENT TO
ALLOW ADEQUATE CIRCULATION OF COLD AIR
PERFORMANCE TO BE EXPECTED BY CUSTOMER

FIG. 3

ADEQUATE CIRCULATION OF AIR
(WATER-COOLED MODELS: WATER SHOULD FLOW
FREELY AND WATER CONTROLS OPERATE
PROPERLY)
FINS FREE FROM EXCESSIVE LINT
FLUE UNOBSTRUCTED AND FREE FROM SOOT
REFRIGERATION CYCLE OPERATION
WATER-COOLED MODEL: RECTIFIER TUBE WARM?
AMMONIA CONDENSER WARM?
DISCHARGE VALVE WARM?
GENERATOR HOT?
(WHEN PRESENT) METHYL-CHLORIDE CONDENS-
ER WARM?

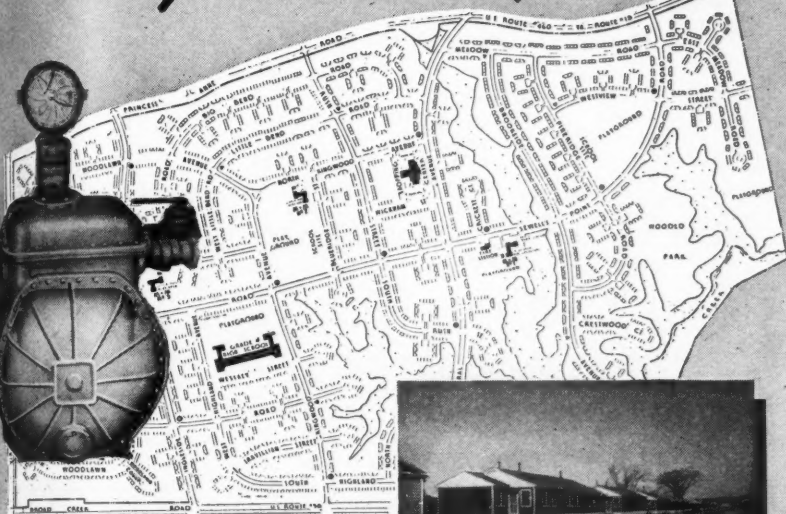
ALLOW ADEQUATE CIRCULATION OF COLD AIR
PERFORMANCE TO BE EXPECTED BY CUSTOMER
CORRECT THERMOSTAT SETTINGS AND THERMISTORS

FIG. 3

BURNER IN CORRECT ADJUSTMENT AND PROPERLY
SPACED AND ALIGNED WITH THE FLUE
ONLY FIRE CLEAN AND PROPERLY SIZED

MASTER-METERING

Through 30 miles of mains



Broad Creek Village, developed and managed by the FPMHA, will shelter more than 3000 families of Government employees or those engaged in essential war industries. Modern Gas Company, Inc. installed the LP-Gas system and provides the service.



At the Broad Creek Village housing project in Norfolk County, Virginia, domestic LP-Gas is distributed over an area of $1\frac{1}{4} \times \frac{3}{4}$ miles at approximately 10 lbs. per sq. in. pressure.

Accuracy of the over-all gas measurement is essential to the proper maintenance of total cost-control figures. The ability of the key meter to take care of itself without pampering is another important factor in its selection.

This master meter—housed in the control building—is the Metric-American 500-B Ironcase LP-Gas Meter, equipped with Base Pressure Index and Volume and Pressure Gage. A Reliance-American H.P.C. governor also is employed in flow control.

★ ★ ★

The several types of Metric-American Ironcase Meters, a "heavy-duty" line adapted to handling various different gases, are covered in our Catalog EG-40. Meters of all sizes and pressures.

2033

METRIC METAL WORKS • ERIE, PENNSYLVANIA

AMERICAN METER COMPANY

INCORPORATED - ESTABLISHED 1887

FIG. 4. PRECISION ORIFICE SPUDS

These orifice spuds supersede all other LP-Gas orifice spuds previously made by Servel, Inc.

Maximum Heat Input Rating of Refrigerating Unit Btu's per Hour	HEAT CONTENT OF GAS Btu's per Cu. Ft.			Orifice Inlet Gas Pressure Inches Water Column Maximum Flame	Mini- mum Flame
	2500	3000	3300		
	Orifice Spud No.				
1900	182	179	179	10.2	1.6
2000	183	181	180	10.2	1.4
2050					
2100	184	182	181	10.2	1.3
2200	185	183	182	10.2	1.2
2250					
2300	186	184	183	10.2	1.1
2350					
2400	187	185	184	10.2	1.0
2450					
2500	188	186	185	10.2	0.9
2550					
2600	189	187	186	10.2	0.8
2700	190	188	187		
2800	191	188	187	10.2	0.7
2900	192	189	188		
3000	193	190	189	10.2	0.6
3100	193	191	190		
3400	196	193	192	10.2	0.5
3750	198	196	195	10.2	0.4
3800					

to give the student an understanding of how the various parts described in the schematic drawing fulfill their functions in the operation of the actual unit. This phase of training fills a definite need in that it removes the mystery from the operation of the cycle and can be used by appliance mechanics in analyzing obscure service problems.

In some cases, however, undue emphasis has been placed on the knowledge of unit operation. Much of the early training on gas refrigerator servicing was planned on the basis that a detailed and intimate knowledge of the refrigeration cycle was essential before a serviceman could effectively service gas refrigerators.

Recent experiences of service

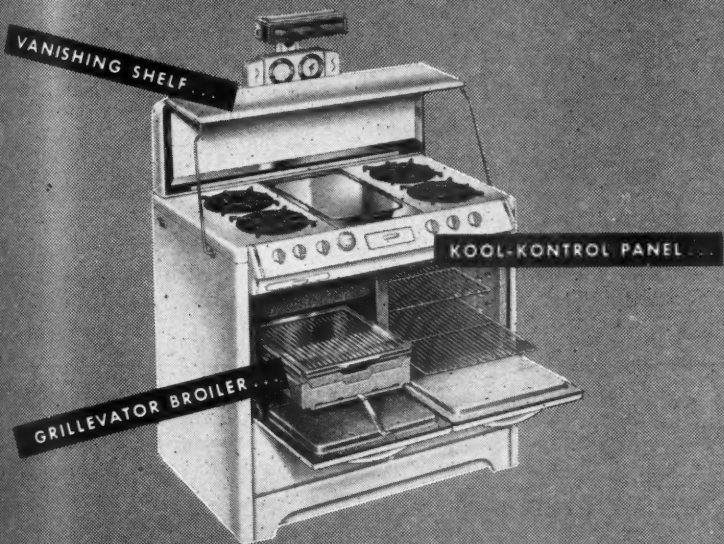
groups have slightly tempered the viewpoint. It was found that servicemen who were competent service gas refrigerators did not remember the details of the cycle from year to year, but their effectiveness in servicing procedures did not seem to be affected.

Apparently, these men have learned from experience that when a given set of abnormal conditions are found, definite counter measures will correct the trouble. This situation led to the belief that many service routines could be reduced to definite steps of inspection, which do not require an intimate knowledge of the physical and chemical changes involved.

Again the manufacturer seems to have anticipated that point,

rel, Inc.
resource
Minimum
Flame
1.6
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
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JULY — 1946

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sibilities in your community! An
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furnishing the operation analysis chart contained in the Maintenance Manual which assists servicemen in determining what corrective measures should be taken to overcome specific service problems.

Instruction on the various operations recommended on the chart, with appropriate variations to conform with local conditions, can be used as the basis for the organization of a large portion of the course.

Most routine servicing can be reduced to very well-defined steps which will assure reasonably complete coverage of the adjustment points on the refrigerator. The job breakdown sheet shown in Fig. 2

outlines the points considered necessary for conducting a normal inspection of a refrigerator when it is serviced in conjunction with Turn-On.

Inspection routines on refrigerator complaint orders are more difficult to crystallize into definite routines, because of the varying types of service requested. In those instances, a broader knowledge of the operation of a gas refrigerator is necessary, but even that type of can be organized into general inspection requirements. Fig. 3 is an example of the general conditions which should be checked when unit operation is questioned.

Company procedures and policies

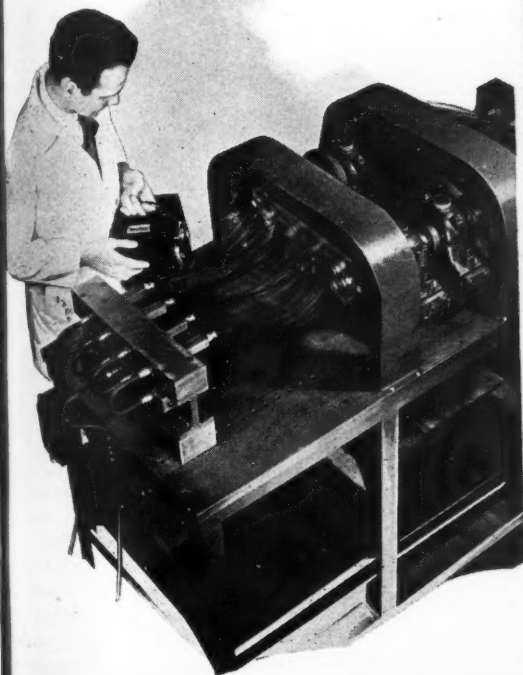
FIG. 5. MAXIMUM HEAT INPUT RATING OF SERVEL KEROSENE REFRIGERATORS CONVERTED TO GAS OPERATION
Using Servel, Inc., Conversion Assemblies

Cabinet Model No.	Maximum Heat Input Rating Btu's per Hour	Cabinet Model No.	Maximum Heat Input Rating Btu's per Hour
EE-73	2900	K-503-A (*)	2250
F-33	2550	K-603	2900
F-53	2900	K-603A	2900
F-73	3100	K-803	3100
F-103 (*)	3000	K-803A	3100
G-413	2300	K-1103 (*)	3750
G-503	2900	KE-70	2900
G-503A	2900	L-503 (*)	2250
G-703	3100	L-503A (*)	2250
G-1003 (*)	3000	L-603	2450
H-503	2700	L-603A	2450
H-503A	2700	L-803	2600
H-603	2900	L-803A	2600
H-803	3100	L-1103 (*)	3750
H-1103 (*)	3400	M-503 (*)	2250
J-413 (*)	1900	M-653 (*)	2250
J-503	2700	M-803 (*)	2800
J-503A	2700	M-1103 (*)	3750
J-603	2900	N-503 (*)	2250
J-803	3100	N-513 (*)	2250
J-1103 (*)	3750	N-603 (*)	2450
K-413 (*)	1900	N-803 (*)	2800
K-503 (*)	2250	N-1103 (*)	3750

* Requires replacement of the kerosene-operated refrigerating unit by a gas-operated refrigerating unit. The replacement gas-operated unit, with the exception of those used in the F-103 and G-1003, contains a generator flue baffle and for that reason the maximum heat input ratings shown above, for cabinets marked (*), are for operation with a baffle. Flue baffle part No. 5110-14 can be furnished for the F-103 and G-1003 units. Kerosene units converted to gas operation should not be equipped with a flue baffle.

Hose does the Hula ...

AT 1800 WIGGLES A MINUTE



The Strobotach this man is using will make sure the hydraulic hose lines are vibrating 1800 times a minute.

This wiggling device was designed by Weatherhead engineers to meet SAE specifications requiring the regular testing of sample hose assemblies taken from standard production runs.

The hose is given this grueling treatment for 200 hours to prove the dependability of the complete assembly and serves to demonstrate how it will stand up after years of service on automobile, truck, or bus.

To make the test even tougher, hot oil, held at 250° F. and under 45 pounds per square inch pressure is circulated through the hose lines as they are whipped round and round.

So when you use any Weatherhead products, you're sure of this: It's your best buy because the research and testing behind it have made it the most highly developed, but competitive priced, product of its kind.

Look Ahead with Weatherhead

The Weatherhead Co., Cleveland 8, Ohio



NEW YORK • DETROIT • CHICAGO • ST. LOUIS • LOS ANGELES

Attention L. P. Gas Engineers

Weatherhead products include Multiple Heads, Regulators, Fittings, and Cylinder Valves. This equipment is listed with the Underwriters Laboratories and tested to meet the requirements of the National Fire Protection Association.

should be related to the instruction material pointing out specific service routines which are recommended by the particular utility. Varying gas pressures and Btu values of the gas served are examples of items which require specific treatment. Information such as gas pressure, orifice sizes, and replacement parts for various models is necessary for reference purposes by servicemen in the field.

It has been found that data of this nature is most useful when prepared on small sheets which can be carried in the serviceman's book together with his orders and is therefore readily available for reference.

Figs. 4 and 5, reproduced from the Servel, Inc., "Serviceman's Manual," are examples of arrangements which prove helpful to appliance mechanics for reference.

Company Formed to Make Gas Plant Conversions

A new company, Conversions and Surveys, Inc., has been organized to assist those gas utilities throughout the country which are contemplating a changeover from manufactured to natural or liquefied petroleum gas. Principal offices of the new company are located at 90 Broad St., New York City.

John H. Warden, president, is well known in the utility industry. Before coming to Conversions and Surveys, Inc., he was associated with Oklahoma Natural Gas Co. and has taken an active part in the activities of the American Gas Association and the Southern Gas Association.

The company is prepared to handle a complete changeover job, including preliminary planning and engineering,

ordering materials, and recruiting training and organizing conversion crews to do the actual changeover work on the customers' premise.

M. C. Adams, engaged in conversion work for many years, has joined the organization and will be in charge of the actual changeover work. Frank M. Orelup, who has had more than 20 years of distribution and utilization engineering experience in the gas industry, is directing the technical activities of the new company.

Other officers and members of the organization are: R. E. Ritchie, R. W. Ducker, G. L. Baker, K. R. Teele, W. Judy, W. C. MacInnes, P. Rempe, P. R. Taylor, and H. V. Schell.

Stove Makers Get Permission To Raise Prices Again

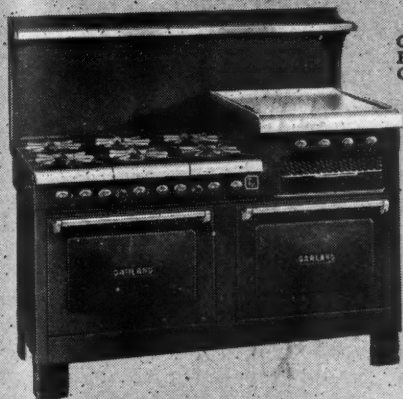
Amendment No. 7 to MPR 64 permits manufacturers, effective June 1, an additional 7.6% increase on stoves other than electric ranges. This is in addition to the previous 5% increase. It sets up formula and methods for determining wholesale and retail ceiling prices.

This amendment also requires manufacturers to compute retail ceiling prices and ticket each unit before it leaves the factory after June 1, 1946. Retail prices are increased 3.0% rounded to the nearest 25 cents in the case of stoves not subject to Federal excise tax, and 3.7% rounded to the nearest 25 cents in the case of stoves subject to Federal excise tax. In the case of prices established after June 7, 1946, unless otherwise provided, the prices are those established by the order or approval.

In the issuance of SO 126 including Amendments 1-37, the OPA lists as exempt from price control, "commercial and institutional kitchen appliances and fixtures."

FEATURES GALORE!

in the Line of the Leader!



**GARLAND
Restaurant
Gas Range
No. 83**

Always—there are good reasons why the leader is in first place. Pictured here are just a few of the features which have made the Garland Restaurant Line so popular everywhere. Write for information which will help you select the model you need.

FLEXIBILITY!

Four individually controlled burners for griddle and broiler.

CONVENIENCE!

Automatic lighting for each of the top burners.

CONVENIENCE!

Removable open grate sections over each top burner.

SOUND DESIGN!

Oven design provides thorough heat circulation.

LONG LIFE!

Oven door springs located out of the high heat zone.

CONVENIENCE!

Wide high shelf for plates and serving dishes.

STRENGTH!

Strong all-steel construction to withstand hard service.

GARLAND

THE TREND IS TO GAS
**FOR ALL
COMMERCIAL COOKING**

A Product of Detroit-Michigan Stove Co., Detroit 31, Michigan

CURRENT READING

● Reviews of new books, pamphlets and articles published in recent magazines of interest to technicians and executives in the liquefied petroleum gas industry. Those interested in reading any complete article or book should write to the publications named.

"Physical Constants of Hydrocarbons," Vol. III, by Dr. Gustav Egloff, Universal Oil Products Co., has just come off the press. This is a 5-volume work which is useful alike to scientists and to technologists in the petroleum and chemical industries. This volume contains the physical constants of the mononuclear aromatic hydrocarbons.

Volume I, containing the physical constants of the paraffin, olefin, acetylene and other aliphatic hydrocarbons, was published in 1939. Volume II, dealing with the alicyclic hydrocarbons, was issued a year later.

Volume IV, physical constants of the polynuclear aromatics, will be out before the end of this year. Volume V, the last of the series, to appear in about two years, will deal with fundamental relationships of the physical constants among all the hydrocarbons studied in the earlier volumes of the series. This information will make it possible to predict the properties of hydrocarbons as yet undiscovered.

Use and Evaluation of Heavy-Duty Engine Oils—O. L. Brandes and H. H. Donaldson, Jr. "S.A.E. Journal," Feb. 1946, pp. 74-80. In carrying out their purpose of giving a general survey of

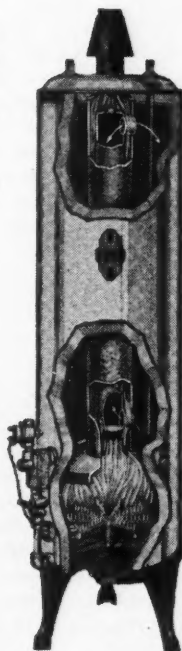
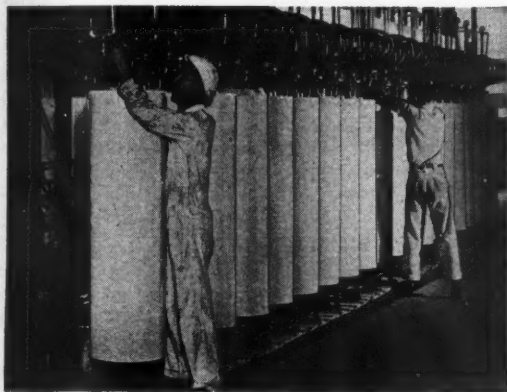
the use and evaluation of heavy-duty engine oils, the authors have divided their subject into four parts, each of which gives their answer to a question, namely: 1. What are heavy-duty oils and how are they made?; 2. Can the engine performance quality of such oils be predicted from convention inspection test data?; 3. How can oils be properly evaluated as to engine performance characteristics?; 4. When is it necessary to use heavy-duty oils, and how should they be used?

Effect of Pressure on the Explosibility of Acetylene-Water Vapor, Acetylene-Air, and Acetylene-Hydrocarbon Mixtures, by G. W. Jones, R. E. Kennedy, I. Spolan and W. J. Huff. R. I. 3826, U. S. Bureau of Mines.

Dehydroisomerization of n-Butane—H. S. Block and R. B. Schaad. "Industrial and Engineering Chemistry," Feb. 1946, pp. 144-147. The conversion of n-butane into a mixture of n-butylenes and isobutylene has been carried out at atmospheric pressure with a catalyst comprising a dehydrogenating component (chromia-alumina) and an olefin-isomerizing component (silica-alumina-thoria). A catalyst bed composed of a mixture of granules of the two components was much more effective than a bed of granules of the mixed powders. Under the most favorable conditions (525-575°C., gaseous hourly space velocities of 500-1200), butylene yields of 25-30% were obtained with a dehydrogenating efficiency

MISSION ENGINEERED

More Hot Water Per Minute
At Less Cost



MISSION water heaters are completely fabricated in the Mission plant . . . under the supervision of Mission engineers. After complete assembly, heaters are tested under 300 pounds pressure and to work under 125 pounds pressure. Thermostat and safety controls are tested for proper operation. Tests are made for proper combustion and mixture of gases. Your assurance that the heater when installed will work to the entire satisfaction of your customers.



Mission Appliance Corporation
MISSION WATER HEATER CORPORATION

Headquarters PLANT: 7101 McKinley Avenue, Los Angeles, California

of approximately 85%. About one-fourth of the yields of butylene was isobutylene.

A Petroleum Engineer Looks at Aircraft Fuels—A. G. Cattaneo, F. G. Bollo and A. L. Stanly. "S.A.E. Journal", Feb., 1946, pp. 59-63. If the refiner is to succeed in blending good low-cost aircraft fuels from the hundreds of components now available to him, the authors point out that it will be necessary for the aircraft and oil industries to cooperate in determining actual fuel performance requirements.

To help reach this goal, the authors present an extensive discussion of the factors affecting the performance of the fuel-engine combination: namely, power, economy, and reliability (including safety).

Mass Spectrometric Analyses of Hydrocarbon and Gas Mixtures, by A. K. Brewer and V. H. Dibeler. Research Paper RP 1664, U. S. Bureau of Standards. The basic principles underlying mass spectrometric analysis of hydrocarbon and gas mixtures are outlined. The method of calculating the composition from the mass-abundance records is described. Analyses of a number of hydrocarbon and other gas mixtures are shown. Whenever possible, comparisons with different methods of analyses are given. The reproducibility and the accuracy obtainable in mass spectrometric analyses are described.

Development of Fuels and Lubricants for Army Ground Vehicles—Capt. N. L. Klein. "National Petroleum News," Feb. 6, 1946, pp. R-92, etc. While petroleum technologists served the armed forces in many capacities none was more important than the research and development work on fuels and lubricants for automotive ground vehicles which was

carried on in the Research and Development Service, Fuels and Lubricants Branch, of the Army Ordnance Department. Due to the type of service conditions, frequently at extremes of temperatures, highly complicated problems for trucks, tanks and other vehicles had to be solved before products could be supplied to the active theaters of war. The scope of the research and development work of the Fuels and Lubricants Branch is described and the supervisory personnel listed.

Orifice Meter in Natural Gasoline Measurement with Simplified Calculation Charts—R. W. Weeks. "Petroleum Refiner," April, 1946, pp. 125-139. In process and control applications, and to some extent in the sale and purchase of hydrocarbon fluids, the use of the orifice meter has long been an accepted standard means of measurement and much has been written concerning the theory and technique with respect to general and specific applications. This widespread use has quite naturally resulted in the development of various convenient charts and tables as calculation aids, but these have generally referred to gases and oil or heavy hydrocarbon liquids, and have not adequately covered the range of natural gasoline nor the light hydrocarbons such as ethane, propane, and the butanes which are contained therein. The author has developed tabulations of metering factors for this application which presents the generally accepted basic data in a handy, usable form without sacrificing accuracy of calculation.

Survey of Natural Gasoline Plants and Cycling Plants in the United States. "Oil and Gas Journal," April 20, 1946, pp. 131, etc. Their capacities and locations are given.

POWER 60,000 Miles Between Overhauls

By RALPH E. MEEDER

Manager, Carburetion Equipment Division
American Liquid Gas Corp., Los Angeles

MANY of us think of Hertz "Drive-Ur-Self" as furnishing only automobiles for hire, but one of their largest departments is local city delivery truck operation. These trucks usually are operated in fleets for a firm that requires trucks to return to their home base each night.

One of these fleets is leased to the Los Angeles Brewing Co., of Los Angeles, who has been using butane-propane fuel for over five years. The Los Angeles Brewing Co. recently completed an installation of a fuel station in their plant located in the vicinity of the Union railroad station in the heart of Los Angeles.

Has Operated Five Years

The original storage and dispensing facilities were installed for this firm by the American Liquid Gas Corp. over five years ago. At that time "Algas" carburetion equipment was furnished to the Hertz organization.

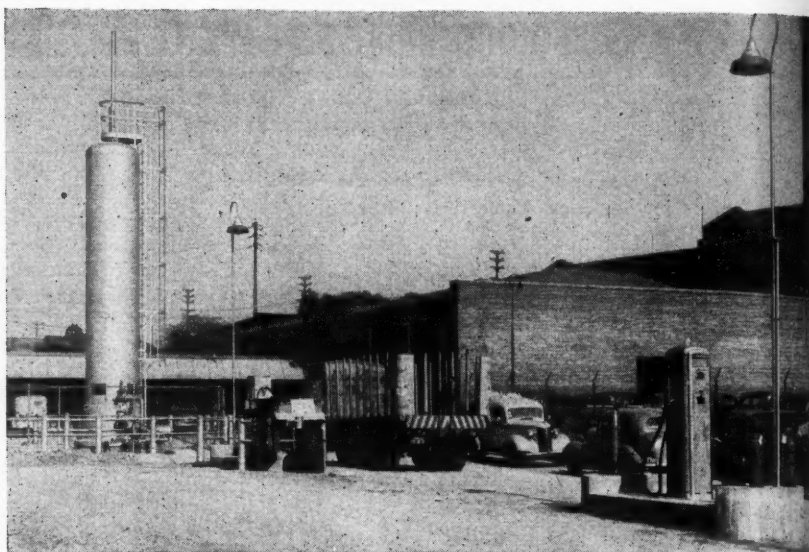
Recently the gas plant division of the American Liquid Gas Corp. engineered and installed the complete fuel station shown in the photographs. It included facilities for butane-propane fuel and gasoline with separate dispensing and service island for each fuel.

Out of a fleet of 59 trucks, 45 operate on butane fuel and the balance on gasoline. This expansion program by the Los Angeles Brewing Co. was inaugurated as a part of a large building program which involved relocation of their motor fuel dispensing and storage.

Safety Codes Followed

The Algas engineers designed this plant to meet all local regulations and incorporated other safety features. The installation was required to meet the approval of the city Fire Prevention Bureau, the Department of Mechanical Engineers of the City of Los Angeles, and the Division of Industrial Safety, State of California.

The butane-propane storage is a 4000-gallon capacity, 250 pounds working pressure tank built to conform to API-ASME code. Other features incorporated in this installation are an ACF 4-inch relief valve at the top of the tank. All steel valves are used and the valve arrangement was established to permit "blowing down" any portion of the system without emptying all fuel lines. The piping design is such that the Smith, Model M3, pump can be used to unload propane from the transport truck and handle the dispensing of the



The 4000-gal., 250-lb. working pressure storage tank of the Los Angeles Brewing Co., and propane and gasoline dispensing units.

fuel. It is installed so that the pump can handle either of the above individually or simultaneously.

The safety features involve not only the handling of the fuel, but the protection of the facilities as well. For instance, a safety guard was installed around the ladder leading to the top of the tank. Around the base of the tank, a 6-foot high chain link fence was erected. Outside of this fence, heavy crash fence is installed made of 6-inch pipe, imbedded in concrete on 6-foot centers, with two rails of 2-inch pipe welded to the posts. This crash guard fence is 30 inches high and protects the chain link fence and all piping from the most severe impact.

The entire area for this plant is approximately 100 x 150 feet, including the gasoline equipment, and is established in this area so as to be clear of any other buildings.

All electrical connections and equipment are of the Class 1, Group D, explosion proof type. The electrical switches for operating the pumping motor are arranged so that the pump can be shut off or turned on from either the dispensing island or at the storage tank. The dispensing system at the island is of a cabinet type utilizing dual dials and with all necessary controlling valves. Both the butane-propane and gasoline dispensing islands are piped for air and water service.

Two 15-pound carbon dioxide

fire extinguishers are placed for accessibility, one at the storage tank and the other at the dispenser.

During the past five years of this fleet operation, both Los Angeles Brewing and the Hertz organizations have experienced considerable satisfaction from the operation, due primarily to the low maintenance cost of the equipment. Also, more trucks can be kept on the highway longer because the engines do not require as much servicing as gasoline fueled trucks.

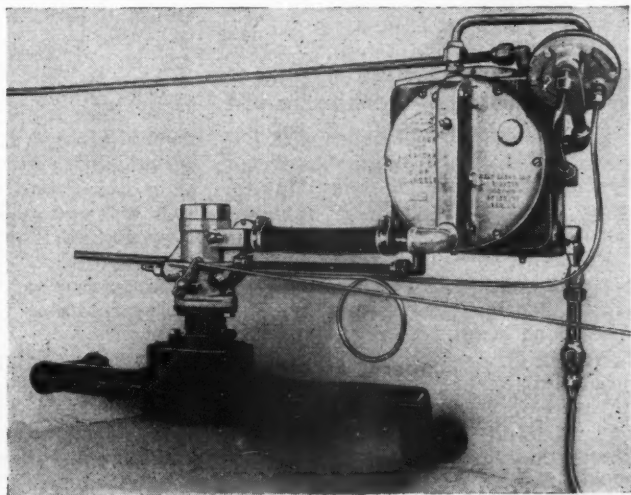
Hertz uses GMC trucks in this fleet, and most of them have been in operation since 1940 and all use Algas mixers and converters. The drivers of these trucks are probably the best boosters of butane-propane fuel operation.

One of the operating features of butane installations is the lack of sludge in the oil which is a typical problem on gasoline operated jobs. The trucks are used in short hauls

and the motor is in constant operation even while the truck is unloaded. This constant operation of the motor while the truck is standing still probably increases the actual motor mileage to twice the truck mileage.

They estimate that their major overhauls are required about every 60,000 truck miles. They have not increased the compression ratio of their engines and oil changes are made about every 8000 to 10,000 miles with 20 weight oil being used. Their present estimate is that the maintenance and replacement of parts on butane-propane fueled engines is at least one-third less than on gasoline. During the war, this latter feature was very evident in the operation due to the great scarcity of parts.

The experience of the Hertz organization and the Los Angeles Brewing Co. is just another point for the butane-propane dealer to



Converter, carburetor and manifold on 45 B-P trucks of Hertz "Drive-Your-Self" in city delivery service.

emphasize in his load balancing program. These trucks use practically the same volume of fuel every month of the year, and in fleets of this size where they do their own maintenance, fueling and mechanical work, the dealer has a customer that requires little service.

ICC Regulations Manual Published

The National Council of Private Motor Truck Owners, Inc., National Press Building, Washington, D. C., has published a loose-leaf reference manual covering all ICC regulations applicable to the interstate operation of private motor trucks.

Designed to acquaint motor truck owners with all of their obligations and liabilities under the Interstate Commerce Act the manual is being made available to all private motor truck owners and other interested parties, regardless of membership in the Council, at cost upon a yearly subscription charge.

SAE Seattle Meeting Aug. 22-24, Will Discuss Transportation

The Society of Automotive Engineers will hold its "West Coast National Transportation and Maintenance Meeting" at the New Washington Hotel, Seattle, Aug. 22-24.

Topics to be discussed are: Passenger cars, automatic transmissions, engines, bearing, lubricants, logging trucks and buses.

Among the speakers will be: Wallace Linville, O. H. Banker, J. H. Shoemaker, Walter Thill, Russ Watson, Dr. C. E. Emmons, J. C. Sheasgreen, Phil Schrodt and L. R. Buckendale.

Jack Neal, Industry Pioneer, Retires from Business

Jack Neal, one of the pioneers of the industry, is leaving the liquefied petroleum gas industry.

Mr. Neal sold the Vapo Gas Systems, Inc., and Vapo Gas Fuel Co. to a corporation known as Vapo Butane Co. This company will operate at 455 South Main, San Antonio, Texas.

Oklahoma Convention and Appliance Show in September

Speakers of national reputation in the industry will be placed on the program of the annual convention of the Oklahoma Liquefied Petroleum Gas Association, to be held at the Skirvin Hotel, Oklahoma City, Sept. 19-21, Fred L. Yates, executive secretary of the association, announces.

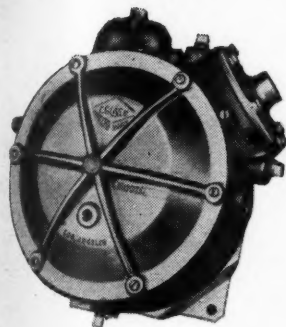
Starting Sept. 18 and running concurrently with the convention, the "Southwestern LPG Appliance Show" will be staged in the Automobile building on the Oklahoma State Fair grounds. The show also will be continued in the same location through the Oklahoma State Fair and Exposition to be held Sept. 21-28, inclusive.

The "Southwestern LPG Appliance" show is sponsored by the Oklahoma Liquefied Petroleum Gas Association. Mr. Yates says that invitations have been sent to B-P Gas distributors and dealers in the states of New Mexico, Colorado, Kansas, Missouri, Arkansas, Louisiana, Texas and Oklahoma to participate in the show with exhibits of appliances and equipment.

Secretary Yates said that several reservations have already been made for space in the exhibit building and he expects to have the 85-ft. by 275-ft. building well filled with interesting exhibits.

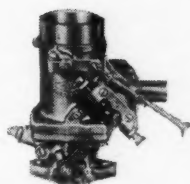
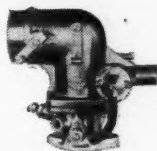
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Upper right: Multi-jet Mixer, Model H-1400— Lower right: Multi-jet Mixer, Model V-1400.



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The Lighter Hydrocarbons Have Taken on a Lot of Weight

By G. G. OBERFELL* and R. W. THOMAS**

Phillips Petroleum Co., Bartlesville, Oklahoma

THE title which we have chosen, "The Lighter Hydrocarbons Have Taken On a Lot of Weight," while somewhat facetious, is one whose inference is of vital importance to every one who has an investment in, or is closely associated with, the liquefied petroleum gas industry.

In this discussion frequent references will be made to the liquefied petroleum gas industry, and it may, therefore, be well to accurately define the term. For purposes of this discussion, the term is intended to include all phases of the production, transportation and distribution of propane, butane and various mixtures thereof for domestic, industrial and utility uses.

Many in this room remember the early days of the industry when the hard, energetic sales efforts of the industry for an entire year resulted in no more additional users of our products than many of your companies can now sell in a few



ROSS THOMAS



G. G. OBERFELL

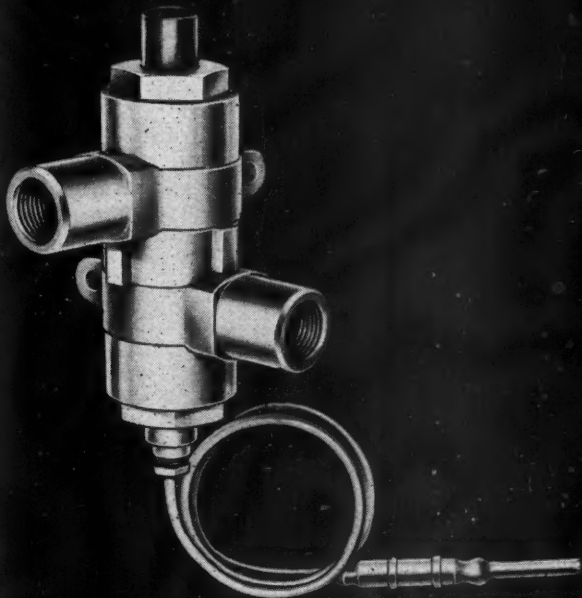
weeks' time. The contrast "then" and "now" is indeed interesting. Twenty years ago the problem of the producers, who were interested in marketing liquefied petroleum gas, was primarily the development of a market for large quantities of propane and butane which were being wasted, or were going into extremely low priced fuel uses. Prior to this time natural gasoline was "weathered," allowing millions of gallons of propane and butane to escape into the atmosphere, and large flares for the purpose of disposing of excess propane and butane burned in gasoline plants and refineries. Before 1930 the sale of a single car load of one of the products was considered as

* Vice President in charge of Research and Development, Phillips Petroleum Co.

** Manager Research and Development, Phillips Petroleum Co.

A paper delivered by R. W. Thomas at the LPGA convention in Colorado Springs, May 27-29.

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ficient reason for sales managers to rejoice.

Sales promotion, advertising and technical and equipment advances by the entire industry during the 1930-40 period developed rapid public acceptance of the use of the products and sales showed a marked increase each year, even during the so-called depression years of this period.

By 1940 the industry had definitely reached the "grown-up stage" and the years of 1941 to 1945 inclusive can well be considered the years of consolidation. Prior to 1941 a very large percentage of the distributors of LPG for domestic fuel uses had considered this type of use as a "means to an end" in securing profits from utilization equipment and appliance sales, without seriously considering the potential profit available through planned gas distribution service.

During the war period many distributors, rather than depending upon appliance and equipment sales as their major source of profit, concentrated upon making the marketing of liquefied petroleum gas profitable; industries increased their use of the fuels for all types of industrial processes in the manufacture of war materials; and utilities expanded their use of liquefied petroleum gas to augment the capacities of their plants, overtaxed by war-time demands.

Almost simultaneously with the consolidation of gas distribution, unprecedented acceptance of the industry by the public has placed the demand for liquefied petroleum gas service for modern, suburban and rural homes on an equal plane

with the telephone, radio and automobile. Careful consideration of these facts certainly justifies the statement that "The Lighter Hydrocarbons Have Taken on a Lot of Weight," and clearly indicates that the industry is at the threshold of its greatest period of expansion.

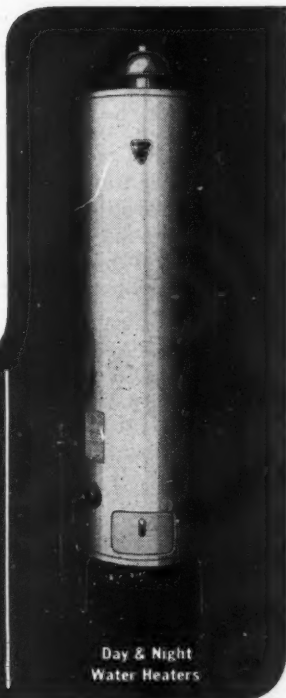
Sources of Supply

As you all know, liquefied petroleum gases come from three sources: natural gasoline plants, cycling plants and refineries. To avoid troubles caused by the condensation of liquid hydrocarbons during the transmission of natural gas from the point of production to places where it is consumed, the heavier hydrocarbons are partially removed. Natural gasoline and liquefied petroleum gases are generally extracted in natural gasoline plants near the gas source. It is customary to separate the extracted material into the desired grades of natural gasoline, and into butane, mixtures of butane and propane, and propane. The greater number of such cuts, the more fractionating equipment required.

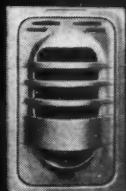
A relatively recent source of LPG is from cycling plants, some of which utilize that physical phenomenon known as retrograde condensation. In certain underground reservoirs, many located on the Gulf Coast, high pressure gas exists with little, if any, liquid in formation. When the gas is brought to the surface and its pressure reduced, sizeable quantities of liquid condense from the gas. The residual gas is then returned to the ground in order to maintain the reservoir pressure as nearly as possible

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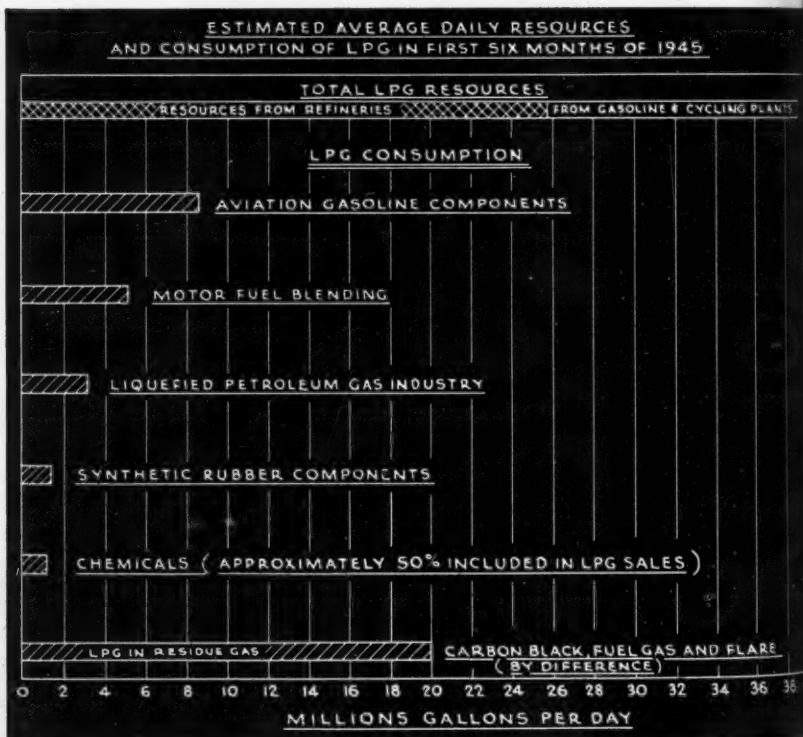
One of the Dresser Industries

sible at its original pressure, because reduction in pressure may cause liquid to condense in the formation. This operation of withdrawing gas from an underground reservoir and returning most of it to the formation has given rise to the term "cycling." The liquid material removed contains sizeable quantities of butanes and propane which are generally extracted and sold as LPG.

Another source of LPG is from the processing of crude oil in refineries. As a result of the various heating operations performed in refining crude oil sizeable quantities

of light hydrocarbons are produced. From these light hydrocarbons liquefied petroleum gas can be separated.

Throughout this talk reference is made to the term liquefied petroleum gas. Most of you think of it as butane and propane while actually a number of additional hydrocarbons may exist in the LPG. In the case of material secured from natural gasoline and cycling plants only the paraffin or saturated series of hydrocarbons generally exists. In the paraffin series we have only C_3 , propane, but two C_4 's, butane and isobutane. In the case of



finery LPG, in addition to the hydrocarbons found in material obtained from natural gasoline and cycling plants, varying amounts of olefins (sometimes called unsaturates) occur. Of these the ones of interest are propylene and several butylenes. For simplicity, we use hereafter the terms butane and propane to refer to all the hydrocarbons in the C₃ and C₄ groups.

Use During the War

During the war large quantities of light hydrocarbons were used in the production of war materials. To fully appreciate the present supply and demand picture of LPG it is necessary to briefly consider the production and consumption of these products during this period. Large quantities of LPG were required in the manufacture of 100 octane aviation gasoline and synthetic rubber components. The production of this aviation gasoline increased from a few thousand gallons per day before the war to over 20 million gallons per day at the close of the war. Likewise the production of synthetic rubber which was only minor prior to the war reached approximately 800,000 long tons during 1945.

Since approximately one-third of the aviation gasoline was produced from LPG, large quantities of these light hydrocarbon gases were required for this purpose. The peak production of aviation gasoline consumed almost nine million gallons per day or about three times the average quantity of LPG used by our industry in 1945. A large amount of this LPG was obtained from thermal and catalytic crack-

ing operations used in the refining of crude oil.

In the case of synthetic rubber components, approximately 50% were produced in 1945 from petroleum products. The two main components were butadiene and styrene, both of which are partially produced from LPG. It is estimated that during 1945, well over one million gallons per day, a quantity of LPG equal to over one-third of the average 1945 daily demand for all purposes of the LPG industry, was used in the production of synthetic rubber components. This demand for these light hydrocarbons has not decreased with the cessation of hostilities but rather has increased and it is expected that this demand will continue for several years to come.

It is evident that the war requirements for light hydrocarbons in the production of aviation gasoline and synthetic rubber increased from virtually nothing to between three and four times the quantity being used by the LPG industry. These hydrocarbons were obtained by increasing the quantity of crude oil being refined, through extensive use of new and modified cracking facilities, installation of new natural gasoline and cycling plant facilities, and by installing new separation equipment for removing the light hydrocarbon gases from the gas streams which were heretofore sent to carbon black plants, used in plant fuel gas systems or in a few cases wasted.

With the termination of hostilities the demand for light hydrocarbons in the production of avia-

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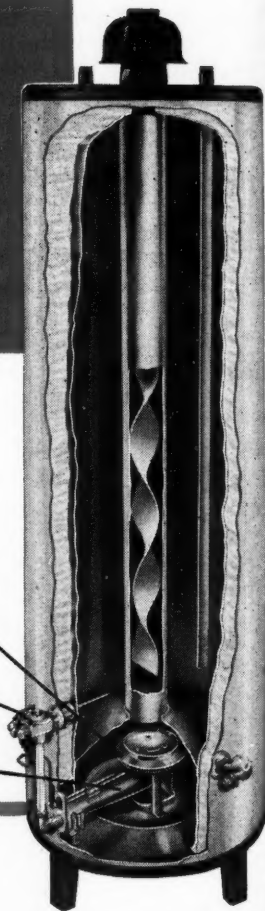
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tion gasoline has greatly decreased. The requirement for the production of synthetic rubber components, however, has increased because of the scarcity and high cost of ethyl alcohol, the principal alternate raw material. An interesting side light is that the quantity of crude oil being refined today is only slightly less than the quantity which was being refined during the war.

Present Demand

The sale of any material is with few exceptions to that market where it will command the greatest profit; LPG is no exception to this rule. When LPG was introduced in sizeable quantities it was more or less a secondary product, its production cost being its fuel value plus the cost of separating and purifying it. Today, however, conditions have changed greatly. Instead of being used only for fuel purposes, LPG is being demanded in large quantities by several other markets which command prices higher than the LPG market.

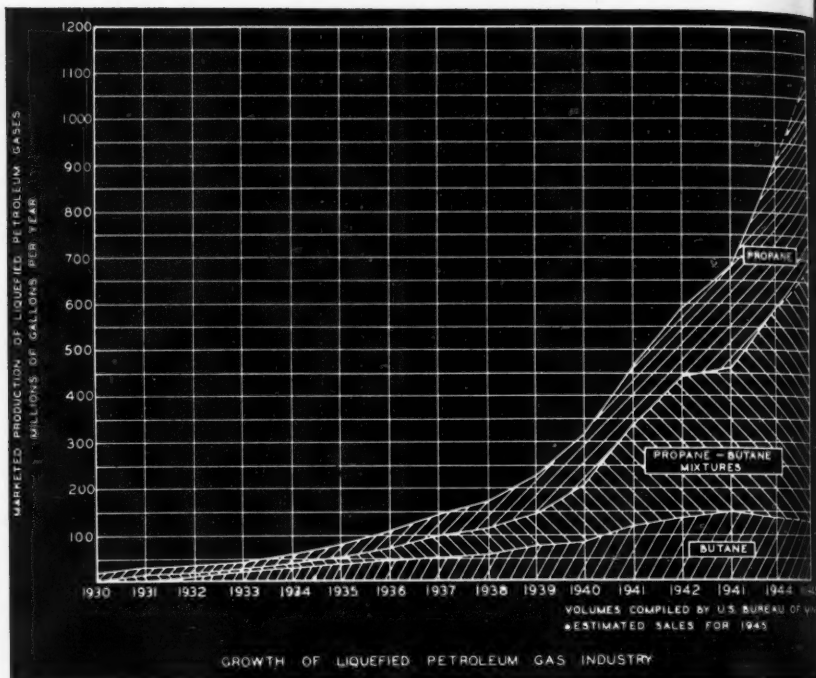
Some of the most important in which LPG is used in large quantities are motor gasoline blending, refining processes (polymerization, alkylation, etc.), synthetic rubber components, chemical, carbon black, and plant fuel.

Most of you are aware of the fact that sizeable quantities of butane are blended in motor gasolines, the quantity depending to a great extent upon the season of the year, with greater quantities being so used during cold weather than during hot weather. Before the war a yearly average of 6% of the

gasoline volume was butane. With the advent of increased cracking facilities the resulting gasoline generally has a higher vapor pressure than that produced before the war. This results in less butane being required in cracked motor gasoline.

Gasoline produced by the operation of alkylation units will have, as a rule, a lower vapor pressure than that produced by cracking. This lower vapor pressure is increased by the addition of greater quantities of butane. While it is expected that some alkylation units will be operated for the production of motor gasoline it is rather difficult to estimate the future consumption as the process is rather expensive unless low cost isobutane and butylenes are available. While it is expected that less butane will be required per gallon of gasoline sold than before the war, nevertheless approximately one and a half times the quantity of LPG used in 1945 by the LPG industry still will be required in motor fuel blending with the seasonal demand coinciding with the maximum LPG market demand. During the war sizeable quantities of propane were substituted for butane in the blending of motor gasoline. This substitution is not normally practiced except as an expedient. Therefore, there is little commercial possibility of substituting another hydrocarbon for butane. When blended with motor gasoline, butane is worth slightly more than motor fuel prices, which are considerably above current LPG prices.

Sizeable quantities of butane have been and will continue to be



used for the synthesis of motor gasoline. If an octane number race takes place in the marketing of motor gasoline, it is possible that a number of alkylation units will be operated in order to produce high octane number motor gasoline. The refinery alkylation unit is a means whereby isobutane and C_3 , C_4 and/or C_5 olefins are converted chemically into a high quality motor or aviation fuel ingredient. It is rather difficult to estimate what the demand for C_4 hydrocarbons would be for this purpose. It is possible that between 2,000,000 and 4,000,000 gallons per day of C_4 's will be required for the postwar

program of synthesizing motor fuel and aviation ingredients.

It is not expected that the C_4 demand in the production of synthetic rubber components will cease for some time. It is estimated to be in the neighborhood of 700,000 gallons of C_4 hydrocarbons per day. Propane is used extensively as a starting product for the production of ethylene for synthesis of styrene and may continue at about the rate of 700,000 gallons per day.

Light hydrocarbons, especially propane, are used in the production of chemicals. The more desirable olefinic feed stock as a rule is obtained from refineries, resulting in many new chemical plants being

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cated adjacent to refineries. The quantity of light hydrocarbons being used for the production of chemicals is increasing steadily but still represents only 20% to 50% of the light hydrocarbons consumed by the LPG industry.

With the large war-time expansion of the synthetic rubber industry, new types of carbon blacks were required and great increase in production of conventional blacks, coupled with some modification of their properties was necessary. Carbon black is very essential to the manufacture of auto and truck tires. The introduction of butane and propane in residue gas going to existing plants increased the carbon black production. Since many carbon black natural gas contracts require a minimum Btu or minimum carbon black yield per cubic foot of residue gas burned, butane and propane cannot be extracted beyond a certain point.

Large quantities of heat are required around natural gasoline plants and refineries. It is the usual practice to pipe residue gas produced in these plants to points where it can be utilized to liberate the required heat. If butane and propane are removed from this residual gas the resultant supply may be insufficient to meet the heating requirements, in which case natural gas or oil must be substituted, giving the extracted LPG a value equivalent to the substituted natural gas or oil plus the additional processing costs necessary to secure a marketable LPG product.

Present Resources and Production

It was estimated that during the

war the average annual resources of C₃ and C₄ hydrocarbons were more than 10 times the total 1946 consumption of the LPG industry. When it is realized that the consumption of the LPG industry increased tenfold in the last 10 years (1936—106,652,000 and 1945—1,100,000,000 gallons) it is readily apparent that the LPG industry will have to grow enormously before it makes noticeable inroads into the potential LPG reserves. In fact, it hasn't made a dent yet.

Would Mean Cost Increase

It should be remembered that a large amount of the potential LPG will have to be separated from existing streams and treated in order to produce a product which will meet purchase specifications. This additional separation and treatment would increase the cost of this added volume to a point where it will not be possible to obtain it at the current LPG prices. This will have a tendency to cause a gradual increase in average cost of LPG. This increase is expected to continue until the price of motor fuel has been reached, particularly with respect to butane.

One of the sources of supply which is rapidly growing is from cycling plants. Also a number of new natural gasoline plants are being erected. The main disadvantage with natural gasoline plants is that frequently their LPG production is so small that it is difficult to justify the installation of the necessary separation equipment. In the case of cycling plants, however, the volume is large enough that

LPG manufacturing facilities can be justified.

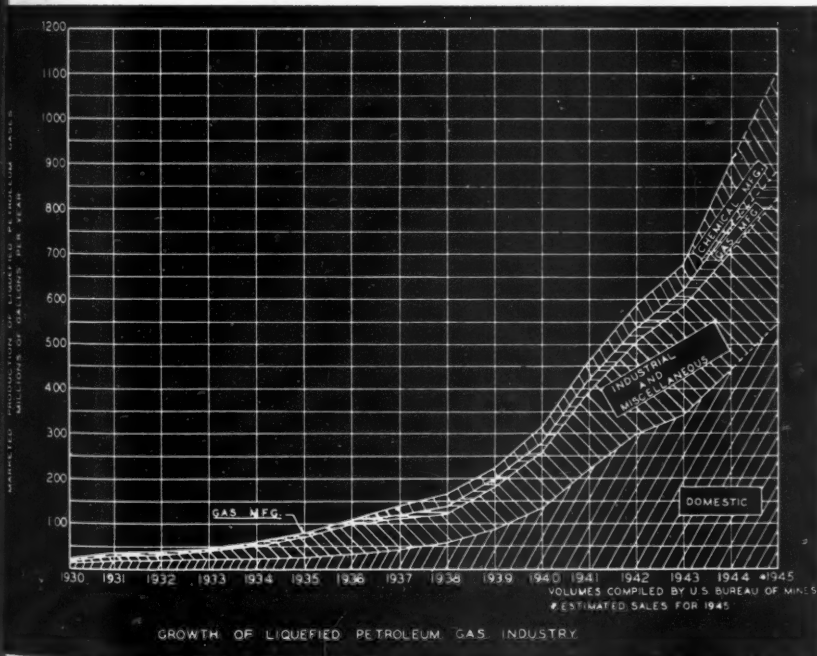
Because of the place advantage of LPG produced at the point of use, all needed refinery LPG is used to meet the local demands of the refinery before securing shipments from natural gasoline or cycling plants. Some refineries will have an excess over their own requirements and this material is potentially available to the LPG industry at a price.

Future Supply

As previously indicated, the supply of liquefied petroleum gas is derived from two distinct sources: that from cycling and natural gasoline plants which is only partly

related to crude oil production, and that from refining of crude oil. It is not expected that the quantity of crude oil processed in the United States will decrease appreciably below its present level. Indications are for some increase in crude runs as the availability of new automobiles increases.

In fact, our national motor gasoline demand for the first two months of this year is higher than for a similar period in 1941 and over 20% greater than the first two months of 1945. We have no reason to expect a diminishing supply of LPG from refineries. Likewise, with the increased demand for natural gas it is expected that greater quantities of LPG will be



produced at cycling and natural gasoline plants.

A recent development which enters the future LPG supply picture is the so-called Fischer-Tropsch process, or variations thereof, which use natural gas as raw material for the production of heavier hydrocarbons. The production of motor gasoline and other petroleum products by this method may yield sizeable quantities of butane and propane. Therefore, installations of this process for the production of petroleum products are not expected to diminish the overall supply of LPG.

Where Competition Lies

The quantity of butane which will be available for use as such or in mixtures with propane by the LPG industry will be dependent directly upon the price offered. Our industry is in competition with the butane requirements for the synthesis of aviation and motor gasoline, production of synthetic rubber components, blending of motor gasoline, and chemical manufacture. These competitive uses can afford to pay more than current LPG prices for much of their requirements. Therefore, the quantity available for use by the LPG industry will be the difference between the demands of the higher price markets and the production.

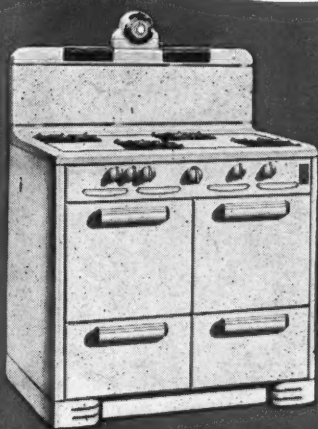
Until the LPG industry is willing to pay motor fuel prices for its butane, the supply for LPG uses will be seasonal and limited. Far sighted marketers will not depend on butane for their long term future requirements unless they are convinced of the profitability of

paying a premium over the propane market. Of course, practically everyone is now purchasing transportation, storage and utilization equipment for propane because of this long term trend.

Investment Considerations

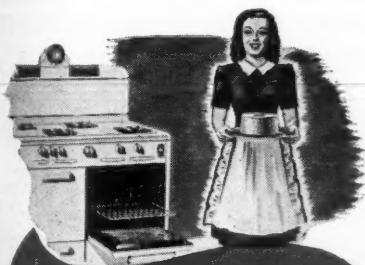
The requirements of industry competing for propane and butane and the large volume sales of the liquefied petroleum gas industry itself, have created problems of production, transportation and storage. The producer or producer marketer and the distributor or direct user because of these mutual problems are more closely associated than ever before. Liquefied petroleum gas is now a co-product and not a by-product in most producing plants. Cost of butane and propane production has steadily increased. Since the production of LPG is a continuous operation, sale of liquefied petroleum gas must be made on a regular basis with almost constant daily shipments. Failure to move the products as they are produced can only result in increased cost. Meeting the industry's peak demands at present price levels is becoming increasingly more difficult for producers, transporters and marketers.

Transportation, that all-important link between the producer and the distributor, or user, has become a very important factor in the industry. At the present time there are approximately 17 million dollars invested in the special tank cars required to transport butane and propane, exclusive of the pressure cars in butadiene and chemical services, and exclusive of the



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millions of dollars invested in LPG transport and tank trucks. Based on the present efficiency of movement of cars, an average investment of approximately five thousand dollars in tank cars is required to deliver one car per month to a distributor or user.

Seasonal Load Variations

Giving serious consideration to the major factors of production and transportation, it is clearly evident that if the liquefied petroleum gas industry is to maintain its present position economically, seasonal peaks in the deliveries of fuel must, to a great measure, be eliminated. A seasonal peak occurs during the winter months of November, December, January and February, caused in part by a high demand for winter space heating requirements in the South. The transportation problem which results is further exaggerated by a general slow-up in transportation in the North. Possibilities for improving the situation include:

1. Increased domestic consumer storage, especially where consumer uses fuel for winter heating.
2. More LPG storage at distributor's bulk plant and at industrial and utility plants.
3. Active sales promotion of summertime uses.

Ample fuel storage is the only assurance of an adequate LPG supply at all seasons of the year.

Active sales promotion of summertime uses of propane and butane offers opportunity for increased profits for the distributor. Summer loads are attractive for the reasons that transportation

costs are lower during the summer months, working conditions and labor efficiency are greater at this time and, consequently, a greater margin of profit can be realized on fuel sales.

Possibilities for increasing summer activities include flame cultivation, weed burning, farm product dehydration and motor fuel use in farm tractors and irrigation power units. Flame cultivation of cotton, sugar cane and other row crops will consume large volumes of propane and butane during 1946 and this use will undoubtedly expand many times during 1947 and 1948.

Considerable research and development work has already been carried out by the LPG industry with manufacturers of farm tractors and power units to provide prime movers factory equipped for efficient, economical use of butane and propane; 1947 should see several thousand factory equipped liquefied petroleum gas units in operation. Dehydration of alfalfa, sweet potatoes and other farm products will require large volumes of LPG in future years.

Conclusions

In conclusion the preceding remarks are summarized:

- (1) The industry's initial rapid growth has been followed by a period, during war years, of very healthful consolidation.
- (2) Growth of the industry, particularly for domestic uses, in 1947 and 1948 should far exceed any previous two-year period.
- (3) There is ample supply of butane and propane for the requirements of motor fuel, aviation gas-

WARREN

LIQUEFIED PETROLEUM GAS

PLAN TODAY FOR TOMORROW'S NEEDS

The growing popularity of Liquefied Petroleum Gas, greatly increased production of new and better home appliances, and greater domestic and industrial use of Butane and Propane reflect the present and future opportunity for alert LP-Gas distributors and dealers.

To meet this growing market and better serve its customers, Warren offers greatly increased production, storage and loading facilities and its large fleet of tank cars. Warren's products are scientifically produced in many modern plants in Oklahoma, Texas, New Mexico, Louisiana, Arkansas and Illinois.

Warren's broad experience, engineering advice and consulting service are available to you without obligation.

WARREN PETROLEUM CORPORATION

TULSA, OKLAHOMA

Detroit

Mobile

Houston

line, synthetic rubber, and chemical industries, over and above the requirements of the LPG industry. In fact, the potential supply far exceeds present demands of these industries.

(4) Increased cost of production facilities and competition from other industries for the products will, over a period of time, probably increase the cost of propane and certainly increase the cost of butane to the LPG industry.

(5) Leveling out the winter-summer ratio is the industry's best assurance of continued satisfactory supply and will serve to delay price increases brought on by competitive industries.

Paul Hinamon Opens New Business With Three Plants

Paul Hinamon has established three bulk plants in Oregon and will concentrate upon domestic accounts.

The home office is at Hillsboro, where he has 16,000 gals. of storage; at McMinnville there is a 7500-gal. tank, and at Tillamook, 5000.

Operating under the name of "Modern Gas and Appliances," Mr. Hinamon has been in business since last January. He buys his propane from Cities Fuel Exchange, Fresno, Calif.

Louisiana Legislature Still Considers B-P Gas Permit Fee

According to a recent bulletin sent out by the Liquefied Petroleum Gas Association, the Louisiana State legislature has acted as follows:

House Bill 707, which proposes the levy of a 1c per gallon tax on liquefied petroleum gas and required the posting of a bond by dealers to insure collection, received an unfavorable recommendation in committee and has been withdrawn.

House Bill 509, which required all gas piping in cities with over 2000 population be done only by licensed plumbers, was also killed in committee.

House Bill 293 proposes a minimum permit fee for all dealers in the amount of \$600 with larger fees on a larger volume of business. It also would require a \$10,000 bond. This bill is still pending.



The newly established plant of "Modern Gas and Appliances," Hillsboro, Ore.

RELIANCE REGULATORS

ARE DESIGNED AND TESTED
TO MAKE L-P GAS BEHAVE



A Reliance Regulator will make gas behave in every conceivable regulating application in the liquid petroleum industry. The wide range of sizes with many variations of Reliance Regulators provide positive and uniform control for all pressure conditions in L-P gas lines.

Since the birth of the L-P gas industry, Reliance Regulators have been preferred for their originality of design, by which positive lock-up and absolute control of

steady outlet pressure are assured under variable loads and inlet pressures.

Simplicity reduces installation costs, minimizes maintenance service, reduces size and weight for convenient handling. To make your L-P gas system behave, install Reliance Regulators.

BULLETINS ARE AVAILABLE ON THE COMPLETE LINE OF APPROVED RELIANCE REGULATORS.

**AMERICAN
METERS**

RELIANCE REGULATORS

RELIANCE REGULATOR CORPORATION
1000 MERIDIAN AVENUE, ALHAMBRA, CALIFORNIA

New Products

Gas Range

Kalamazoo Stove & Furnace Co.,
459 Rochester Ave., Kalamazoo, Mich.
Model: Easton.

Description: The first model of the new postwar range will be distributed within the month. It is a 40"-wide



range with an 18"-wide, 20"-deep and 14½" high oven. The oven is welded into a single piece with no crevices and has rounded corners which make it easy to clean. The oven also has non-tilt ribbon type racks with positive stops, a rigid serving shelf door, automatic oven light and a thick blanket of mineral wool insulation.

This new range has one giant and three regular burners, spaced 10" from center to center to hold extra large utensils. Gas mixture adjustment is made without removing the manifold panel or stove top. The "Flame Ray" broiler, a waist-high

drawer-type, is 9" deep with a seven-position broiler pan and grid.

Kalamazoo will also produce electric ranges and Supersteel warm air furnaces; and will distribute refrigerators, washing machines and ironers.

Liquid Level Gauge

C & S Manufacturing & Supply Co.,
2122 Jackson St., Dallas 1.

Description: The gauge is manufactured in both junior and senior sizes. The gauge indicator is actuated by a strong magnet attached to the end of the float rod. The magnet is enclosed in a separate compartment of the



BUTANE-PROPANE No.

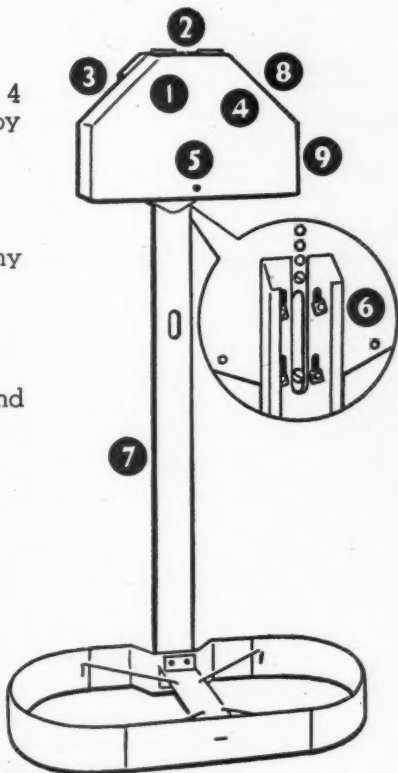
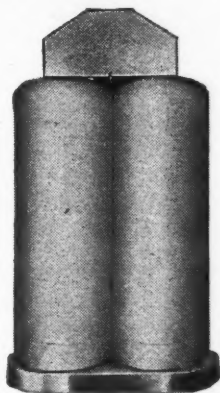
BETTER HOUSINGS at PRODUCTION PRICES

Superior Design and Construction by Stampings Inc.

CHECK THESE FEATURES:

1. Completely bonderized
2. Brass pin hinges
3. Heavy 16 ga. steel (This steel is 4 gauges heavier than required by Underwriters' Laboratories)
4. Baked Enamel Wrinkle Finish
5. Positive Locking Device
6. Slots for Easy Mounting (Fits any regulator hole centers)
7. Sturdy Post Support (14 gauge)
8. Good Appearance
9. 100% Protection (Regulator and Valves are completely covered)

No. H-1-P Dual Housing Unit for use with two 100 lb. cylinders. Makes a neat, durable installation. Single and dual housings are now available. Let us recommend for your needs. Write today.



No. H-1-P Dual Housing Unit showing features.

STAMPINGS
INCORPORATED

DAVENPORT, IOWA

gauge head and has no mechanical linkage or physical opening into the gauge dial, thus protecting the installation against accidental leakage of either gas or liquid under pressure.

The float, float gearing and attachment yoke is very small and compact, 1¼" in diameter. The float and magnet connecting rod is housed in a ¾" O.D. steel tube which imparts great strength and rigidity to the unit.

Cabinet Heater

The Ohio Foundry & Manufacturing Co., Steubenville, Ohio.

Model: 50 B1.

Application: Heater is designed for use in home, office, store or shop.

Description: It has an all-steel low fashioned welded cabinet, easy to



wash and does not mar easily. Products of combustion are confined in a sealed steel radiator which, when properly vented to flue, prevents fumes from reaching the room and

For Dealers At The Top and going up

★ Call US —

WE HAVE:

Two Burner Hot Plates—Water Heaters
Propane Tanks—All Sizes
Regulators—Valves

EN ROUTE TO US:

LPG Operated, Light Plants—Pressure Systems
Ranges—Space Heaters—Floor Furnaces

QUALITY — QUANTITY — DEPENDABLE DELIVERY

★ UTILITY SUPPLY COMPANY

P. O. Box 365—Fresno, California

Exclusively Wholesale for LPG Dealers

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up



18,000-gallon tanks for Butane storage

These butane tanks at the Automatic Gas Company's La Grange, Ga., plant are 8 ft. in diam. by 49 ft. 2 in. long and operate at 125 lbs. per sq. in. pressure. They were fabricated at our Birmingham plant.

We are equipped to build shop-assembled cylindrical tanks and field-erected tanks of all types. Our Birmingham, Greenville, Pa. and Chicago plants have facilities for stress-relieving according to code requirements.

CHICAGO BRIDGE & IRON COMPANY

Birmingham, I.....1519 N. Fiftieth St.
Chicago, 4.....2459 McCormick Bldg.
San Francisco, 11.1289-22 Battery St. Bldg.
Cleveland, 15.....2271 Guildhall Bldg.
Tulsa, 3.....1657 Hunt Bldg.
Atlanta, 3.....2101 Healey Bldg

Los Angeles, 14.....1468 Wm. Fox Bldg.
New York 6.....3451-165 Broadway Bldg.
Philadelphia, 3.1655-1700 Walnut St. Bldg.
Washington, 4.....703 Atlantic Bldg.
Houston, 1.....5647 Clinton Drive
Detroit, 26.....1559 Lafayette Bldg.

Plants at BIRMINGHAM, CHICAGO, and GREENVILLE, PENNSYLVANIA

also prevents the sweating of walls and windows.

The burner is of high-efficiency type, cast in one piece of heat-resistant iron and includes built-in draft hood and "blue flame" pilot. Quick heating is a feature of this model. A convenient door in side panel assures easy access to lighter port. It can be equipped with automatic controls.

Pump Bulletin

Sixty types and styles of vertical and horizontal pumps manufactured by Peerless Pump Division of Food Machinery Corp. are presented in a new Bulletin (B-136) just issued.

Types include deep and shallow well pumps, "Hi-Lift" pumps, and domestic water systems.

A copy may be obtained by addressing the manufacturer, 301 West Avenue 26, Los Angeles 31.

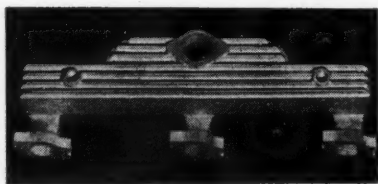
Cylinder Bulletin

A new bulletin, containing detailed data on Scaife LP-Gas Cylinders for liquefied petroleum gas service, has been published by Scaife Co., Orem, Pa.

Featured in the new Scaife bulletin is complete information on all Scaife cash-and-carry, transportable, and stationary LP-Gas cylinders, from 15 lbs. to 420 lbs. propane capacity, inclusive. All cylinder dimensions, weights, and capacities are included in a single table for convenient reference. Proportional drawings of all sizes provide clear and immediate identification of any of the complete list of Scaife cylinders for every liquid petroleum need.

Bulletin No. 321 describes and illustrates these Scaife cylinders.

ELLIS "Bu-Power" MANIFOLDS Now Lead the Way to Power and Mileage



Our dealers, who "Bu-Power" installations, find their customers enjoy **BETTER PERFORMANCE—INCREASED MILEAGE.**

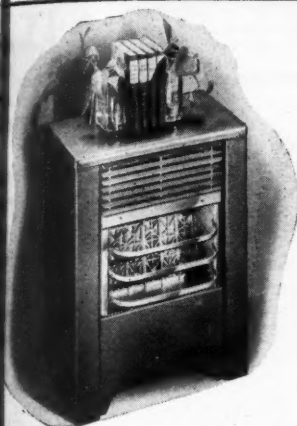
**DEALERSHIPS STILL OPEN
IN CERTAIN TERRITORIES**

The "Bu-Power" Line Bases Its Superiority on These Features:

- **60% LOWER OPERATING TEMPERATURES**—maintained by the presence of seven cooling fins, extending the full length of aluminum manifold.
- **73% MORE VOLUME** (than stock manifold)—permits the use of larger venturi.
- **PERFECT DISTRIBUTION** to all cylinders means a smoother operating engine.
- **EASILY INSTALLED**—every manifold has three vacuum brake take-offs.
- **STEEL EXHAUST "BLOCK-OFF" PLATES FURNISHED ON REQUEST**—Cutting or welding exhaust manifold eliminated.

ELLIS MANIFOLD COMPANY

1708 S. Soto Street ★ Phone AN 1-3463 ★ Los Angeles 23, California



DEARBORN

WORLD'S FINEST... SAFEST L.P.G. GAS HEATERS

A complete line of Vented and Unvented Quality heaters. Their Ultra Smart Appearance, Outstanding L.P.G. Performance and many Exclusive Features create unprecedented user enthusiasm. You are assured satisfied customers and decidedly lower service costs when you sell this fine line.



BUT.
PRO.
MIX.

NAT.
MFG.
GAS.

FAMOUS HI-CROWN BURNER

BLUE FLAME PILOT LIGHT

Leading L.P.G. Distributors from coast to coast rate it the finest of all burners for Butane. It "performs" without coaxing, constant cleaning or adjusting. Its quiet, odorless operation, great flexibility and reserve capacity insures your customers being completely satisfied.

DEARBORN STOVE CO.

1700 W. Commerce St.
DALLAS, TEXAS

3625 S. Grand Ave.
LOS ANGELES, CALIF.

FEATURES THAT SELL

A.G.A. Approval, Hi-Crown Burners, Automatic Lighting, Syphonaire Chassis, and Air Insulated Cabinets are features your customers want. Finer—Safer heaters, yet priced unbelievably LOW. Write for literature.

You'll find LPG EQUIPMENT
made by McNAMAR of Tulsa

Used All Over America

LPG SYSTEMS

- DOMESTIC
- COMMERCIAL
- INDUSTRIAL



— A Name That Stands for Quality —

McNAMAR Boiler & Tank Co.

BOX 848

TULSA, OKLAHOMA

PROPANE

If You Are Seeking:—

- 1—A DEPENDABLE SOURCE
- 2—A UNIFORM PRODUCT
- 3—A CAPABLE SUPPLIER
- 4—AN EXPERIENCED MANUFACTURER

Then inquire—

Cities Service Oil Co.

In Propane also

CITIES SERVICE

means

GOOD SERVICE

**CITIES
Service Oil Co.**

(Delaware)

BARTLESVILLE, OKLA. — CHICAGO, ILL.

Other Sales Offices

Cleveland
St. Paul

Kansas City
Toronto

THE TRADE

The Geo. D. Roper Corp., Rockford, Ill., has announced a service training program for service men and service departments.

To meet with enthusiastic customer acceptance, gas ranges must always be properly installed and adjusted, and, when necessary, skillfully repaired. That is the "why" for Roper's "Design for Service."

Used in this program is the Roper Service Hand Book which explains in detail the Roper service policy, care and use of the range, the principles of combustion. Top burners, oven broiler, automatic ignition and other features come in for their fair share of attention.

Also to make the service man's life simpler is a Roper installation manual. This booklet answers every possible question concerning assembly, delivery and installation of Roper ranges.

This is not a program of theory but a practical training course that will enable men to "learn by doing."

The Sprague Meter Co. announces the return of Major Thomas J. Watt after five years of active duty with the Army ground forces. Major Watt entered on active duty as a Captain CAC with the Connecticut National Guard in September, 1940.

Major Watt joined the Sprague Meter Co. in 1929, engaging in factory production until 1940. He will now join the sales division as Eastern sales representative, with offices at 35 South Ave., Bridgeport, Conn.

Cleveland Co-operative Stove Co. has purchased the land, buildings and equipment of Cooperative Enamel

D TATTERSFIELD

Butane Propane MANIFOLDS for DODGE TRUCKS

Picture illustrates butane manifold for Dodge, Plymouth, DeSoto and Chrysler 6 motors. This manifold has been designed to give the highest efficiency in both power and operating costs. It will save you money tomorrow to order your Tattersfield Butane Manifold today.



BU-SEAL Compound offers a safe, sure defense against leaks. A modern, new type sealing compound for LP-Gas valves and fittings, BU-SEAL should be a "must" on every dealer's bench. If you haven't used BU-SEAL, order some today!

FIVE REASONS WHY

1. No Hot Spots
2. Even Distribution
3. No Restrictions
4. Proper Finning
5. Larger Internal Area

Electric and Carburetor Engineering Co.

223 East 8th Street

"Pioneers of the Butane Industry"

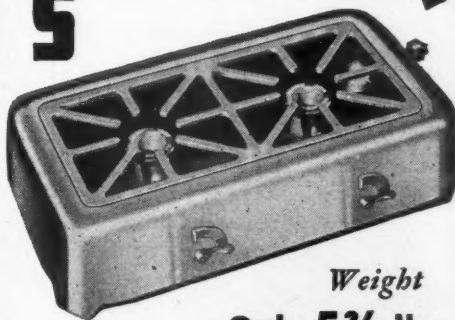
Los Angeles 21, Calif.

Designed for

LP GAS

NEW ALL ALUMINUM PORT-O-STOVE

Uses Butane, Propane or any mixture of the two with equal satisfaction. Ideal where small installation is required. Write for full particulars.



FUEL SUPPLY
ATTACHED
HERE

Weight
Only **5 $\frac{3}{8}$ lbs.**

Guaranteed against mechanical and material defects

Manufactured by

ART METAL APPLIANCE CO.

3106 PARK AVE. • ST. LOUIS 4, MO.

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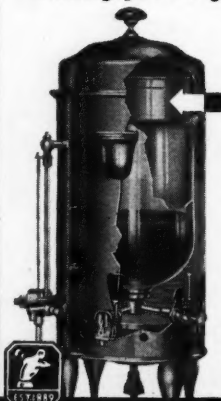


MADE THE *NEW* WAY

**...without filter papers
...without urn bags**

**Tri-Saver System Coffee Urns
build LP gas volume and profits**

• Build your LP gas load with the new Tri-Saver coffee urn. With them, your customers will serve a rich, clear coffee brew — free of sediment. The permanent filter eliminates urn bags and filter paper. Tri-Saver stainless steel urns are burnout-proof and will give many years of service. They build good will for you while increasing your LP gas sales.



This is the patented Tri-Saver permanent stainless steel filter which eliminates urn bags and filter papers. Extracts maximum coffee flavor — no waste, no sediment.

SEND FOR CATALOG
giving complete details about these outstanding load-builders.

S. BLICKMAN, INC.

MANUFACTURERS OF FOOD SERVICE EQUIPMENT
2107 Gregory Ave., WEEHAWKEN, N. J.

Co., and took over operation of the enameling plant on July 1, according to James Mitchell, president of the stove company.

Cooperative Enameling Co. has, for a number of years, done the enameling of the Cleveland Co-operative Stove Co.'s "Grand" gas ranges, in addition to work performed for other gas appliance manufacturers.

Mr. Mitchell has announced the capacity of the enameling plant will be doubled by the immediate installation of a new continuous furnace and other equipment.

John E. Bogan, vice president of Cribben and Sexton Co., manufacturer of "Universal" gas ranges, has announced the appointment of A. "Ted" Carrow as manager of the range sales division. Mr. Carrow is an ex-captain of the Army air force.

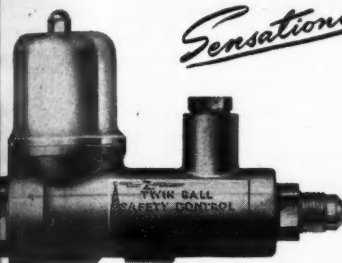
This newly formed department created in conformance with Cribben's postwar policy of separate and special attention to the design, engineering, promotion and sale of Universal ranges. Mr. Carrow will head a staff of experts whose time will be devoted exclusively to the promotion, sale and service of gas ranges in "beyond-the-gas-main" territories.

The Kerotest Manufacturing Co., Pittsburgh, has acquired the Security Valve Division of Security Engineering Co., Inc., Whittier, Calif. a member of Dresser Industries, Inc., according to an announcement by Edward G. Mueller, Kerotest president. A new manufacturing plant has been acquired at Slauson and Alcoa Avenues, Los Angeles, where the production line of Security cast and forged valves and Kerotest valves will be produced for Pacific Coast and Western distribution.

At the same time, Mr. Mueller announced the formation of a new

No MORE FIRE!

Sensational **TWIN-BALL SAFETY CONTROL**



LOCKOFF FOR BUTANE - PROPANE OPERATED EQUIPMENT

Save on fuel Fuel is off when ignition is off
Available 6v or 12v Draws only 1 6 amperes.
Fuel supply tank selected from cab while in motion
Easily installed. Connects in fuel feed line

- IDEAL FOR SOUNDING AIR HORNS
- LEVER ARM GIVES 8 TIMES THE POWER
- EASILY CONVERTED NORMALLY OPEN OR NORMALLY CLOSED

BEAM PRODUCTS

1206 EAST SIXTH ST.

LOS ANGELES, 21, CALIF.

DEALERS WRITE FOR FULL PARTICULARS

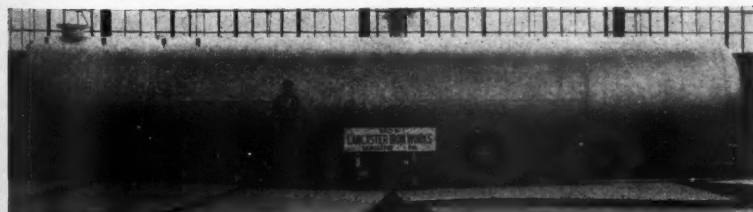
LANCASTER BULK STORAGE TANKS

Designed For Rigid Requirements

Butane
 Butane-Propane Mixtures

Gas Plants For Municipalities
 Truck Tanks Skid Tanks

Your Inquiries Are Cordially Invited



LANCASTER IRON WORKS, INC.

Lancaster, Penna.



HELCO Regulator for Butane-Propane Service

Approved: California Industrial Safety Division No. 2099. Louisiana Liquefied Petroleum Gas Commission. Texas Railroad Commission. Inlet pressure—up to 250 lbs. tank pressure. Outlet pressure—11 in. water column. Capacity—200 c.f.h. Fittings—inlet P.O.L., outlet $\frac{3}{4}$ ".

Available for Immediate Delivery

• • •

Bulk Storage Tanks

14000 and 18000 gal. propane tanks available for lease or sale. Fuel service by rail if desired. Engineering service for installation of bulk storage in 11 western states. Your inquiries are invited.

H. E. Lynn & Co., Inc.

548 S. Spring St.
Los Angeles 13, Calif.

pany—The Kerotest Pacific Co. (to operated as a subsidiary of the parent Pittsburgh company, Kerotest Manufacturing Co.)—in order to more satisfactorily serve the customers both Security Valve and Kerotest throughout the Western states.

Officers of the Kerotest Pacific Co. are president, Edward G. Mueller; vice president and general sales manager, Stanley J. Roush; secretary, treasurer and general manager, Walter G. Swaney.

Kerotest manufacturing Co. has acquired the Wiljack Co., South Pasadena, Calif., manufacturers of stock valves in Carbon and stainless steel.

Savory Equipment, Inc., New York N. J., has announced that delivery of its stainless steel toasters are expected to start on a six- to eight-week schedule soon. Savory toasters are manufactured for operation on both gas and electricity.

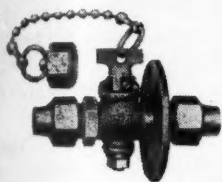
Ralph C. Cameron, former merchandising manager of the Airtemp division, Chrysler Corp., Dayton, Ohio, has been named assistant to the president of the Rudd Manufacturing Co., Pittsburgh, Pa., makers of gas water heaters, it is announced by R. Lewis, Rudd president.

Certificates awarded by Brand Names Research Foundation to Standard Gas Equipment Corp., of Baltimore, in recognition of a total of 25 years of public service of their household and domestic gas range and cooking equipment trade names "Acorn" and "Vulcan," were presented to John W. McNair, vice president and general manager, at a testimonial dinner May 21st at Baltimore's Belvedere by A. O. Buckingham, chairman of the Foundation.

The Brand Names Research Foundation

Designed

TO MEET LP-GAS NEEDS



No. 7665
Floor Stop



No. 9500 Stove Elbow



Hays has worked closely with LP-Gas Engineers, to design and produce a complete line of stops and fittings for every installation need, for use with flared tubing. Couplings are included, no other fittings or adapters are necessary.

Illustrated are No. 7665 Floor Stop, ideal for temporary disconnections, with adjustable flange, and with or without cap and chain, $\frac{3}{8}$ " or $\frac{1}{2}$ " tubing (o.d. sizes); and No. 9500 Copper to Female I.P. Stove Elbow, $\frac{3}{8}$ " or $\frac{1}{2}$ " tubing (o.d. sizes) x $\frac{1}{4}$ " iron pipe.

Send us your requirements, for complete information and specifications.

Write for NEW LP-Gas Folder 101

HAYS MANUFACTURING CO., ERIE, PA.

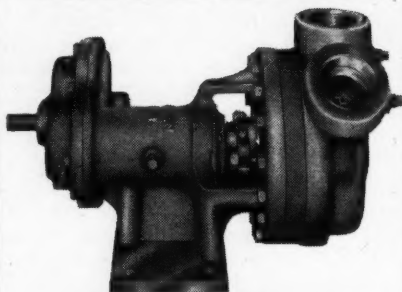
Butane & Propane

Carter

Carter high quality Butane and Propane are unsurpassed as domestic and industrial fuels. Bulk loading points, St. Elmo, Illinois, Seminole and Stonewall, Oklahoma. Wholesale only. Your inquiries are solicited.

THE CARTER OIL COMPANY
T U L S A , O K L A H O M A

IT'S NEW



**IT'S BUILT ESPECIALLY
FOR BUTANE-PROPANE**

**CORKEN'S
TRUCK PUMP**

—is now ready to go to work for you. Ready to unload delivery trucks into above or underground storage or into 100-pound cylinders.

Corken's Truck Pump has enough capacity to transfer from transports to storage . . . enough differential pressure to fill bottles.

Extremely sturdy . . . takes up small space, being 16½" long, 10" high and 10" wide . . . weighs 100 lbs. Built to transfer millions of gallons of LP Gas without maintenance. Write, wire or phone for our illustrated folder.

CORKEN'S

L P GAS EQUIPMENT DEPT.

206 E. Grand Ave.
OKLAHOMA CITY 2, OKLA.
Tel. LD 765, 7-6517

dation conferred its centennial testimonial to the name Acorn for 11 years of service. The Vulcan name received the golden award for 10 years of service.

The new Adel liquefied petroleum gas dispenser, pump and accessories now have complete distribution in the United States and Canada through the following agencies:

Shields-Harper, Western and Pacific states.

United Petroleum Gas Co., Central Midwest and East Coast states.

Tank Sales & Equipment Co., South Central and Southwest states.

Railway & Power Engineering Corp., Ltd., Canada.

Production of the Adel equipment has been stepped up recently to meet the increased demand.

Dean Payne has just joined the "Rego" sales staff in the Chicago office of The Bastian-Blessing Co., and announces R. E. Poethig, sales manager of the Rego Division.

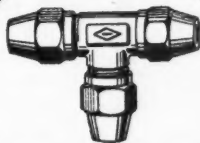
Mr. Payne attended Northwestern University Engineering School and had three years' practical experience in the engineering department of a public utilities company. He has served three years as a cadet in the Army Air Corps, from which he has recently been discharged.

W. H. Seaman, who has been with Mosher Steel since 1936, except for five years in the army, has been appointed sales engineer for the Butane Gas division of Mosher Steel. He will make his headquarters at Houston, Texas.

While in the army, Mr. Seaman served as a major in the Corps of Engineers, working with the Manhattan District development of the atomic bomb.

Shipments under Mr. Seaman will

**BRASS FITTINGS • COPPER TUBING
• TOOLS FOR TUBING • VALVES & COCKS**



Write For Prices and Information to...

MIDLAND PARTS & BEARINGS CO.

IRVING, KANSAS

Or 1418-A Grand Ave., Kansas City, Mo.

Immediate delivery on
LPG SYSTEMS

Shipments from Bessemer, Alabama, ASME Underwriter
Approved Tanks, 125 to 200 pound working pressure,
aboveground or underground.

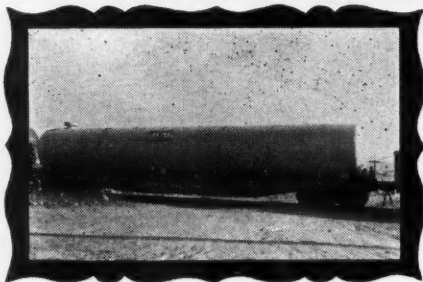
Eight years' experience in building quality tanks.

L. P. G. EQUIPMENT COMPANY

108 W. Concord Avenue, Orlando, Florida

P. O. Box 3507, Telephone 5206

PORTRAIT OF AN LPG TANK *Going to Work*



Here's a 14,300 gallon, gross capacity, Propane storage tank on car for shipment to a Minnesota Dealer. Graver designed and fabricated for a working pressure of 200 pounds per sq. in., the tank is 84" in diameter and 53' long.

Graver tanks, bullets, and spheres for the storage of LPG meet all ASME Code requirements, and are available in any size and capacity to meet your requirements. Shop built and field erected.

Graver ability to provide safe, dependable LPG storage is backed by 85 years of experience in the fabrication of steel plate, and by modern equipment including x-raying and stress relieving facilities.

Send your blueprints and specifications for prompt quotations.



Fabricated Steel Plate Division of

GRAVER TANK & MFG. CO., INC.

Gen. Offices: 4811-63 Tod Ave., E. Chicago, Ind.
 New York Chicago Catasauqua, Pa. Tulsa, Okla.
 Philadelphia Port Arthur, Texas Pittsburgh, Pa.

be made into Louisiana, Alabama, Georgia, Arkansas and Texas. New Mexico and Colorado will be contacted in the near future.

The latest appointment announced by Julius Klein, general sales director of Caloric Gas Stove Works, with headquarters in Philadelphia, is that of L. H. Ernst as southeastern district sales manager, with headquarters in Winston-Salem, N. C.

Caloric has recently completed a new plant building at Topton, Pa.

When equipped, the new structure will add 90,000 square feet for manufacturing facilities. The Topton plant and other properties cover 130 acres.

New and larger New York sales rooms have been opened by the Florence Stove Co. in No. 1 Park Avenue building, according to an announcement by Robert H. Taylor, New York manager.

"We would like to invite all dealers who come to New York to drop into the New York display rooms 302, No. 1 Park Avenue building," said Mr. Taylor.

Roberts & Mander Stove Co., Harrisburg, Pa., has announced the appointment of John H. Emery as district manager for Metropolitan and New York State areas.

R. S. Agee, vice president of Roberts & Mander, also announced the opening of a new factory branch office and showroom at 1 Park Avenue, New York City, where Mr. Emery will make his headquarters.

Clifford R. Hale has been appointed general manager of purchasing and traffic for Rheem Manufacturing Co. It has been announced by W. E. Zander, vice president.

His headquarters will be in the New

Now PIPE JOINT COMPOUND *in Stick Form*

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JULY — 1946

129



For The Man Who Must Know About PUMPS

If it is your job to see to it that the right pump is used for the pumping problem at hand, be sure you have the latest information on VIKING Rotary Pumps.

These pumps are self-priming; capable of delivering against discharge pressures up to 200 pounds per square inch; smooth, even flow with no pulsation; operate at slow speed for long, dependable life; only two moving "gear within a gear" parts assure low cost operation and service.



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SWEETS

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Pump Company
CEDAR FALLS, IOWA

York offices of the company, which manufactures basic household appliances and steel shipping containers in its eleven U. S. plants.

Catalog of Appliances and Equipment Off the Press

The 1946 edition of the "Catalog of Butane-Propane Appliances and Equipment" is now off the press. Published by "Butane-Propane News," it contains 244 pages of catalog information supplied by manufacturers who are making products specifically for the liquefied petroleum gas industry.

Every type of equipment and appliance is included, affording readers a quick, complete compilation of data. It is exhaustively cross indexed and classified.

One hundred and twenty-seven manufacturers have cooperated in the preparation of this consolidated, industry catalog.

The scope of information, and the important function the catalog fills in aiding dealers to select and order equipment and appliances, is evidenced by the hundreds of cards of approval and appreciation received since the books were mailed, all requesting copies of next year's book.

Typical of these replies is one from R. A. Shea, Superior Gas and Appliance Company, Enterprise, Ala. Mr. Shea states, "Excellent. The industry needs a single, complete catalog rather than a stack of individual ones."

All butane-propane dealers, distributors, town plants and producers are entitled to one copy for each company office at no cost.

To others, and to those desiring more than one copy for the same office, the price is \$3.50. Requests for the catalog should be sent to "Butane-Propane News," 1709 West 8th St., Los Angeles 14.

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- Chapter 2: The ABC of LP-Gas, an Introduction to LP-Gas Operations.

PART 2. PHYSICAL AND CHEMICAL PROPERTIES

- Chapter 1: Properties of the Hydrocarbons in LP-Gas.
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- Chapter 1: Natural Gasoline Plants, Recycling Plants, and Oil Refineries.

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Section 2: Handy Tables for Field Use.

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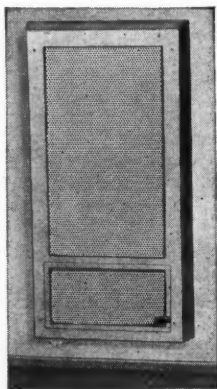
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Kenneth Koach Now Heads Green's Fuel of Florida, Inc.

K. H. Koach, of Sarasota, Fla., was elected president of Green's Fuel of Florida, Inc., at the annual meeting of the board of directors held in June.



K. H. KOACH

Koach succeeds J. B. Green, who was elected chairman of the board of directors. Other officers named were: Taylor Green, vice president, and S. A. Jackman, vice president and secretary-treasurer.

Green's Fuel of Florida, Inc., with headquarters in Sarasota, operates branches at Plant City, Lakeland, Lake Wales and Bartow. Several new stores and offices are contemplated in this area.

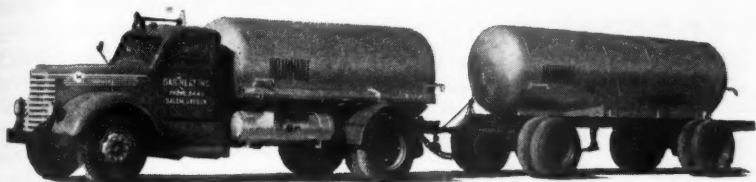
Officers of Green's Fuel, Inc., and J. B. Green Plumbing & Equipment, Inc., remain the same.

Texas Supreme Court Upholds Legislature In B-P Gas Act

The supreme court of Texas recently stated in the case of R. A. Dunning et ux v. Automatic Gas Co. (15 Texas Supreme 245):

"It was entirely proper for the legislature to adopt, for the guidance of the Railroad Commission in administering the act, standards therefor prescribed by the National Board of Fire Underwriters. Nor is the statute invalid because those adopted were not copied into the act but were incorporated into it by reference to a document then on file with the administering agency."

The state act provided that all com-



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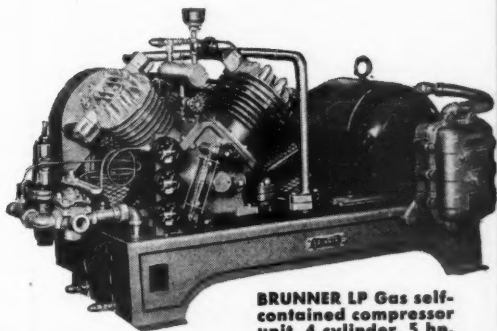
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Petroleum Gas operators using the Brunner LP Gas Unit recover 500 to 1000 lbs. of gas from every tank car unloaded. Having alone quickly pays for the initial cost of the Brunner self-contained unit. And since LP Gas is a necessity in many industrial areas, this gas saving is important as a conservation measure.

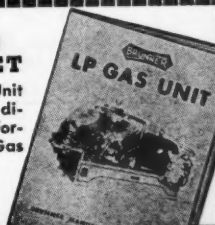
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UTICA 1, NEW YORK, U. S. A.



BRUNNER LP Gas self-contained compressor unit, 4 cylinder, 5 hp.

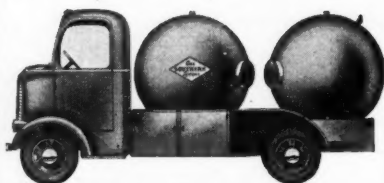
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It describes the Brunner LP Gas Unit and contains more illustrations, diagrams, tables and valuable information on the handling of LP Gas than any booklet ever issued.



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SOUTHERN GAS & EQUIPMENT COMPANY manufactures everything needed by an LP-Gas dealer from Transport Truck and Storage Tanks to Home Systems. We design and build Butane and Propane Tanks and Systems to customers' specifications. All construction complies with A.S.M.E. codes, paragraph U-69, fire underwriters codes and state laws.



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Atlanta, Georgia**

**Southern Gas & Equipment Co.
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tainers, etc., should be designed, constructed and equipped and installed as specified under the published regulations of the NBFU (Pamphlet No. 58). Residents of a suburb of Greenville, Texas, opposed the erection of two butane storage tanks at a point approximately 128 feet from the nearest home, and asked an injunction.

The appellate court first decided against the petitioners and this decision was upheld by the Supreme Court.

ICC Names Jan. 15, 1947, For Cylinder Retesting Limit

The ICC, under date of June 6, has amended its regulation on cylinder retesting by adding to paragraph (p) (14) Section 303, the following statement:

"(Add) (p)(14)(m) Until further order of the Commission, Liquefied Petroleum Gas Cylinders constructed in accordance with ICC specification 4B which became due for quinquennial retest between Dec. 7, 1941, and Dec. 31, 1945, must be removed from service on or before Jan. 15, 1947, unless retested as required by Section 303 (p)(13)(a), (b) and other pertinent sections of these regulations."

The effect of this change in regulations, according to the Liquefied Petroleum Gas Association, is to remove liability for non-compliance from any owner of LP-Gas cylinders whose cylinders, which came due for retest during the period Dec. 7, 1941, to Dec. 31, 1945, have not been retested and qualified for continued service as required by this Federal law.

The Association calls attention to the fact that as this regulation now reads, all owners of LP-Gas cylinders of the age described above are given an extension of time expiring January 15, 1947, in which to qualify the cylinders for service.

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we have the
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Maximum economy in operating your gas-burning equipment can be attained only if the correct type of gas is used for your particular technical requirements. For efficient performance and economical operating try:



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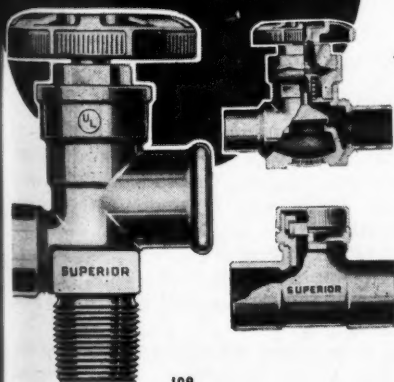
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CALOL INDUSTRIAL GASES . . . Designed specifically for utilities manufacturing gas distributed through gas mains.

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Superior LP-GAS VALVES AND ACCESSORIES

For Bulk Stations, Tank Trucks, and above and below ground systems.



108

- ★ **LP-GAS CYLINDER VALVES** are listed as Standard and for re-examination service by Underwriters' Laboratories, Inc.
- ★ **GLOBE, LINE AND ANGLE VALVES** — Diaphragm Packless and Wing Cap — in Flare sizes from $\frac{1}{4}$ " to $\frac{3}{8}$ " O.D.; Sweat sizes from $\frac{1}{4}$ " to $2\frac{3}{8}$ " O.D.; F.P.T. sizes from $\frac{1}{2}$ " to 2".
- ★ **SIGHT GLASSES**, suitable for any normal LP-Gas pressure. Entire top assembly removable while soldering lines to body.
- ★ **FLARE FITTINGS**, including Unions, Couplings, Adapters, Elbows, Tees and Nuts — listed as Standard by Underwriters' Laboratories, Inc.

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(See March, 1946, Butane-Propane NEWS, Page 19, for complete explanation of coverage.)

This agency does not deal through local agents owing to the special hazards involved. All inquiries must be directed to—

LOUIS H. COLLAR
Manager
Liquefied Petroleum Gas
Insurance Underwriters

1913 Tauromee Ave., Phone: DRexel 3331
 Kansas City 2, Kansas

B. T. Harris Elected President
Arkansas Dealers Association

B. T. Harris, Little Rock, was elected president of the Arkansas Butane Dealers Association at the or-



B. T. HARRIS

ganization's annual June meeting in Little Rock. Approximately 200 attended. Governor Ben Laney, of Arkansas, addressed the group, and J. J. Schmelzer, secretary of the Arkansas Foundry Co., and president of the Greater Little Rock Chamber of Com-

merce, was master of ceremonies.

Other officers elected are: R. C. Weiss, Wheatley, first vice president; Cy Carney, Fayetteville, second vice president; Miss Mary Nell Wallace, Little Rock, secretary; and C. N. Kent, Harrison, R. J. Dodson of Camden, Leonard Warden of West Memphis, B. W. Linder of Little Rock, B. M. Brazil of Dermott, D. G. White of Paragould, and H. P. Riley of Pine Bluff, directors.

Louisiana Dealers Elect
Quentin Jones President

At the annual spring meeting of the Louisiana Butane Dealers Association, held in Alexandria, La., Quentin Jones was elected to the presidency.

Other officers elected are John R. Holicer, vice president; John M. Robinson, secretary, and Sam B. White, treasurer.

New board members are Leslie Kipper, V. N. McNeeley, J. H. Winton, and Luke Abramson.

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FOR SALE—SINGLE TANK BUTANE Transport, complete Unit. 3500 gallon water capacity, ASME Code U-69, 1000x20 tires. Tractor 1940 Model 3 ton Diamond T, with JxD engine, in excellent shape. 2 - 60 gallon saddle tanks and Acme carburetion. 10 speeds forward. Available immediately. \$4,500. O. A. Schuster, Perryton, Texas.

FOR SALE—LIMITED QUANTITY NEW Propane Cylinders, 35 lbs. capacity complete with POL valves. Address Stainless Steel Tank Corporation, 176 W. Adams St., Chicago 3, Illinois. Phone Dearborn 5941.

FOR SALE—USED BUTANE-PROPANE Cylinders, 40 lb. capacity. For Further Information write—Burdett Oxygen Company, 3300 Lakeside Avenue, Cleveland 14, Ohio.

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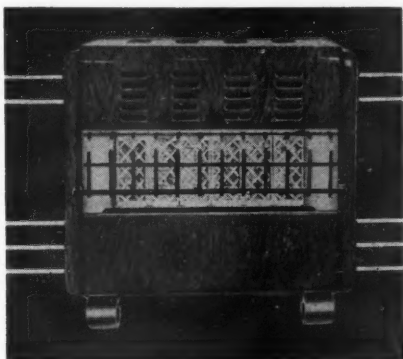
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Staubenville, Ohio





BUTANE-PROPANE News



Reg. U.S. Pat. Off.

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ELLIOTT TAYLOR, Editorial Director

52 Vanderbilt Ave., New York (17), N. Y. Phone: MURray Hill 2-4504

Publication Office

LOS ANGELES (14)—1709 W. Eighth St.
Phone: DRexel 4387

Branch Offices

CHICAGO (3)—1064 Peoples Gas Bldg.
Phone: WABash 2589
DAVID CARMAN, Manager

NEW YORK (17)—50 East 42nd Street
Phone: MURray Hill 2-4504
L. V. HOHL, Manager

Editorial

LYNN C. DENNY, Editor
PAUL LADY, Assistant Editor
H. W. WICKSTROM, Technical Editor

Executive

JAY JENKINS, President and Publisher
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August, 1946. Volume 8. Number 8. BUTANE-PROPANE News is published monthly. Copyright 1946 by Jenkins Publications, Inc., at 1709 W. Eighth Street, Los Angeles 14, California. Subscription price: United States and U. S. Possessions, Canada, Mexico, Cuba, South and Central American Countries (in advance), 25c per copy, one year \$1.50; three years for \$2.50. All other countries \$3.00 per year. Entered as second-class matter May 29, 1939, at the post office at Los Angeles, California, under the Act of March 3, 1879.

Member of Audit Bureau of Circulation; Associated Business Papers, Inc.

Publishers: GAS, The Magazine of the Gas Utility Industry; HANDBOOK BUTANE-PROPANE GASES; THE BOTTLED GAS MANUAL; WESTERN METALS; CATALOG BUTANE-PROPANE APPLIANCES AND EQUIPMENT.

LETTERS

Gentlemen:

In the April issue of Butane-Propane News the subject of your "Quiz" was "Appliance Conversion." Among other references are some to the Servel refrigerator.

In order to avoid a possible misunderstanding by your readers, I would suggest the following answers to Questions 4 and 10:

Question 4. Can gasoline and kerosene appliances be satisfactorily adapted to gas?

Suggested Answer. Generally not. The one exception is the Servel refrigerator which can be changed from kerosene operation to B-P Gas by the installation of the factory supplied kerosene-to-gas conversion assembly. This conversion assembly may or may not contain a refrigerating unit, depending on the model refrigerator involved.

Question 10. What changes are necessary on a space heater and on a refrigerator?

Suggested Answer. For a space heater a change in orifice size and sometimes additional parts are required in the burners. If it is thermostatically controlled, the addition of 100% automatic main burner and shut-off is required. For a refrigerator the use of a B-P Gas burner with the proper orifice for the model unit involved is necessary.

J. C. Keller, Jr.

Service Manager

Household Refrigerator Division,

Servel, Inc.

Evansville, Ind.

We are glad to present these suggestions to our readers.—Ed.



A. L. Di Giulian and H. R. Gottwald

Gentlemen:

Numerous people within our organization were quite interested in the article on page 143 of the June, 1946, issue of Butane-Propane News, and particularly they were struck by the photograph of our Messrs. A. L. DiGiulian and H. R. Gottwald. Seriously, this has created more comment than would have occurred if the photograph had been used.

We would appreciate your sending us three copies of this issue so that we might forward them to the several people involved. This type of error is only human, and our thought was that you had probably lost the print. We are therefore, enclosing another photograph of Messrs. DiGiulian and Gottwald in the event you would want to run a follow-up in some future issue.

Rockwell Manufacturing Co.

W. F. Weimer

Ass't. Advertising Manager

Pittsburgh, Pa.

We did have a picture, a cut was made from it, and we thought it was in the page until the June book came off the press. The cut has never been found. We offer our apologies, and are glad to run the new photo. One reader, seeing the blank space, said it looked to him like a picture of white swans flying in a snow storm. And it really did.—Ed.